

Inspire policy making by territorial evidence



MSP-LSI – Maritime Spatial Planning and Land-Sea Interactions

Targeted Analysis
Version 20/02/2020

Final Report

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Abbreviations

COMPASS	Comparative Analysis of Territorial Governance and Spatial Planning Systems in Europe
EC	European Commission
ESPON	European Territorial Observatory Network
ESTaDOR	European Seas Territorial Development Opportunities and Risks
EU	European Union
IC(Z)M	Integrated Coastal (Zone) Management
LAUs	Local Area Units
LSI	Land-Sea Interaction(s)
MSEG	Member States Expert Group
MSFD	Marine Strategy Framework Directive (2008/56/EC)
MSP	Maritime/Marine Spatial Planning (ref. for legal background EU/2014/89)
NUTS	Nomenclature of Territorial Units for Statistics
ToR	Terms of Reference
WFD	Water Framework Directive

Preface

Land-Sea Interactions (hereafter LSI) have been introduced in European legislation as part of the directive 2014/89/EU of the European Parliament and of the Council of 23 July 2014 establishing a framework for Maritime Spatial Planning.

This was done to create flexibility for the European Member States in addressing the environmental, ecological, social, cultural, economic interrelations/interactions which exist between what happens at and in the seas/ocean with developments on land. The EU Member States which have jurisdiction over a part of a sea have the obligation to carry out a Maritime Spatial Planning process, resulting in a Maritime Spatial (policy) Plan by end of March 2021.

Addressing LSI in the process of analysing existing interrelations to benefit the policy/stakeholder decision making in a Maritime Spatial Plan offers the possibility to work with (long standing) pre-existing concepts like Integrated Coastal Management (ICM) resp. Integrated Coastal Zone Management (IZCM), having a legal status in a range of EU Member States and beyond through the Barcelona Convention and the related Protocol of Madrid.

At the same time, LSI also open the way to various different methods to look at the interaction and influence of activities on land with/on the marine system and maritime world and vice versa. LSI allow for analysing the entire value chain of goods and services from producer to end-consumer as well as the wider connections in the natural world, like migratory birds using land, sea, air and coasts without relating themselves to human delineations of judicial regions. All of this analysis is aimed to make well informed decisions nationally and aim for coherence across borders and sea basins benefiting all of those concerned.

As LSI is a new concept, allowing to build on other policies and institutional arrangements to address the topic on a national level, there are of course a lot of aspects which can be studied around LSI and questions to be asked. European legislators have not defined LSI for the very good reason that LSI differ for each region concerned, which is also of importance to those countries which are referred to as land-locked. Communities, business and ecological systems in those areas also benefit of and are dependent on the ocean, the seas and the coast. In many coastal states various concepts and methods have been used and applied to flesh out the topic, including story-telling, statistical research, SWOT analysis, territorial planning methods and supporting analyses.

It is for planners and stakeholders, jointly with and under guidance of the appropriate governmental levels, to decide what works for their situation and what topics of interest to take up as focus areas. Such may be the Motorways of the Seas, specific marine mammals or fish, energy transition for a better climate, effects of activities on land influencing the policy target of a healthy and biodiverse (marine) ecosystem, the tourism and leisure economy, dealing with sea level rise and much more.

In order to help planners in the EU Member States concerned, ESPON has been asked to conduct a “targeted analysis study” using existing ESPON methods and different case studies in various EU Member States to present a possible approach how LSI could be addressed in spatial planning, which could be informative to the Members of the Stakeholder Group and beyond, for instance the Member States Expert Group on MSP and DG Mare as well as DG Environment as focal points for the European Commission. The work is intended also to be informative for regions working nationally in and around sea basins for instance in the CPMR and for Members of European Parliament, notably those who are part of the EP Intergroup SEARICA.

This study is a first attempt to bring more light into the LSI issue. As is often the case when new issues are analysed, also this study had to struggle with challenges, all the more so as our seas are still only partially well investigated areas. The statistical standards used in Europe today do not reproduce the diversity of LSI, neither in their functional nor in their spatial expression. There

are gaps in the data basis that had to be used for the recommendations given in the present study.

Furthermore, Land-Sea Interactions and Sea-Land Interactions can be found in every aspect of life on earth, and are much broader than can be taken up in a policy document like a Maritime or Marine Spatial Plan. Let this study, which is a first approximation, not prevent you from further thinking about LSI, but use its findings and advice as a welcome contribution in making life of planners, stakeholders and politicians a bit more manageable. Land and Sea cannot be divided; Life on Land is Life below Water (and vice versa).

The Stakeholder Group

1 Introduction

The 2014 Maritime Spatial Planning Directive requires coastal states of the European Union to establish complete coverage of maritime plans by 2021, taking into account land sea interactions (LSI) in order to promote sustainable and integrated development and management of human activities at sea (See Box 1).

Box 1: EU MSP Directive – MSP and Land-Sea Interactions

16) Marine and coastal activities are often closely interrelated. In order to promote the sustainable use of maritime space, maritime spatial planning should take into account LSI's. For this reason, maritime spatial planning can play a very useful role in determining orientations related to sustainable and integrated management of human activities at sea, preservation of the living environment, the fragility of coastal ecosystems, erosion and social and economic factors. Maritime spatial planning should aim to integrate the maritime dimension of some coastal uses or activities and their impacts and ultimately allow an integrated and strategic vision.

What has the ESPON MSP-LSI project involved?

Making sense of LSI for the MSP planning community (including terrestrial planners where relevant) presents significant challenges. The MSP-LSI targeted analysis reflects this interest and explores how LSI considerations can be defined and operationalised for the MSP community (see Figure 1). Based upon an examination of existing LSI research and practice related to MSP, an approach to exploring LSI and in particular the landward socio-economic impacts of key maritime sectors has been developed. This has been tested and refined through 5 pilot case studies in Slovenia, the Gulf of Gdańsk, the Croatia Coast and Islands, The Pomeranian Bight and Dutch North Sea.

What are the key outputs of MSP-LSI?

- An approach to exploring LSI at various scales for use by the MSP community (including terrestrial planners where relevant)
- Case study examples of applying the approach and good practice in addressing LSI
- Recommendations for authorities and stakeholders involved in MSP and/or terrestrial planning processes to more fully take account of LSI in decision making.

Figure 1: Exploring Maritime Spatial Planning and land-sea interactions?



Source: Willemijn Lambert

2 An Approach to Exploring LSI in MSP

Key Points:

- LSI involve intricate and constantly shifting interconnections between socio-economic activities both in the sea and on land with natural processes that span the land-sea interface. The experience in both these dimensions is also influenced directly and indirectly by governance arrangements related to marine and terrestrial areas.
- The inherent complexities in defining 'coastal area' reveals the potential difficulties in assigning clear governance responsibilities in relation to LSI issues. This is particularly relevant to this study which has a central concern with improving spatial planning and governance both on land and for the sea. However complexities should not deter us from carrying out LSI analysis.
- Wider adoption and practice of a 'one-space' land/sea view of Territorial Planning is seen by us as a key concept in helping to better address LSI and integrating MSP and terrestrial planning in deeper ways.
- Findings from the different aspects of analysis outlined here can be brought together to draw out key messages and develop recommendations for appropriate management of LSI for MSP or in land planning activities, which can also exist under a framework of ICM or ICZM.

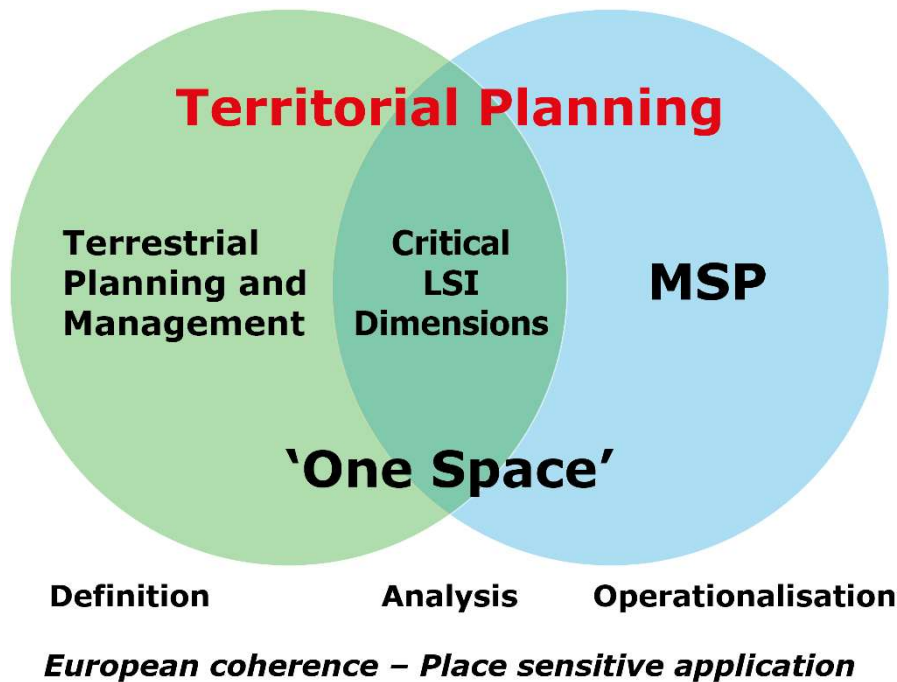
2.1 One Space' Territorial Planning

A key perspective underpinning this MSP-LSI research is a 'one space' view of Territorial Planning, which envisages close integration of spatial planning for the land and the sea and encourages coherence and consideration of the interrelations in both marine and landward plans. Such an interpretation is consistent with many of the core ideas related to the purpose of territorial governance and spatial planning distilled, for example, by the recent ESPON COMPASS study. It is also informing the development of MSP through the provisions of the MSP Directive and is resulting in a range of responses tailored to different national contexts. However, it is felt that the value of such a perspective is not widely recognised at the moment among the terrestrial planning community. Wider recognition and practice of a 'One-Space' Territorial Planning view is seen as a key element in helping to better address LSI.

With these considerations in mind, Figure 2 presents an overall concept that has informed the development of an approach to exploring LSI presented here. This embodies:

- A 'one space' territorial planning view;
- Coordinated, comparable and systematic definition and evidence based analysis of critical LSI dimensions of relevance to MSP and those engaged in terrestrial planning and management across Europe;
- Place sensitive application and operationalisation of LSI considerations in the day to day processes and practices of relevant stakeholders.

Figure 2: Addressing LSI and a 'One Space' Territorial Planning Perspective



What does the MSP-LSI approach include?

- A framework for considering LSI in MSP;
- Proposed working definitions of LSI, Coastal Area and LSI Core Area;
- A method for more detailed investigation of LSI with a particular focus on understanding the main socio-economic impacts on land of key maritime sectors.

2.2 A Framework for considering LSI in MSP

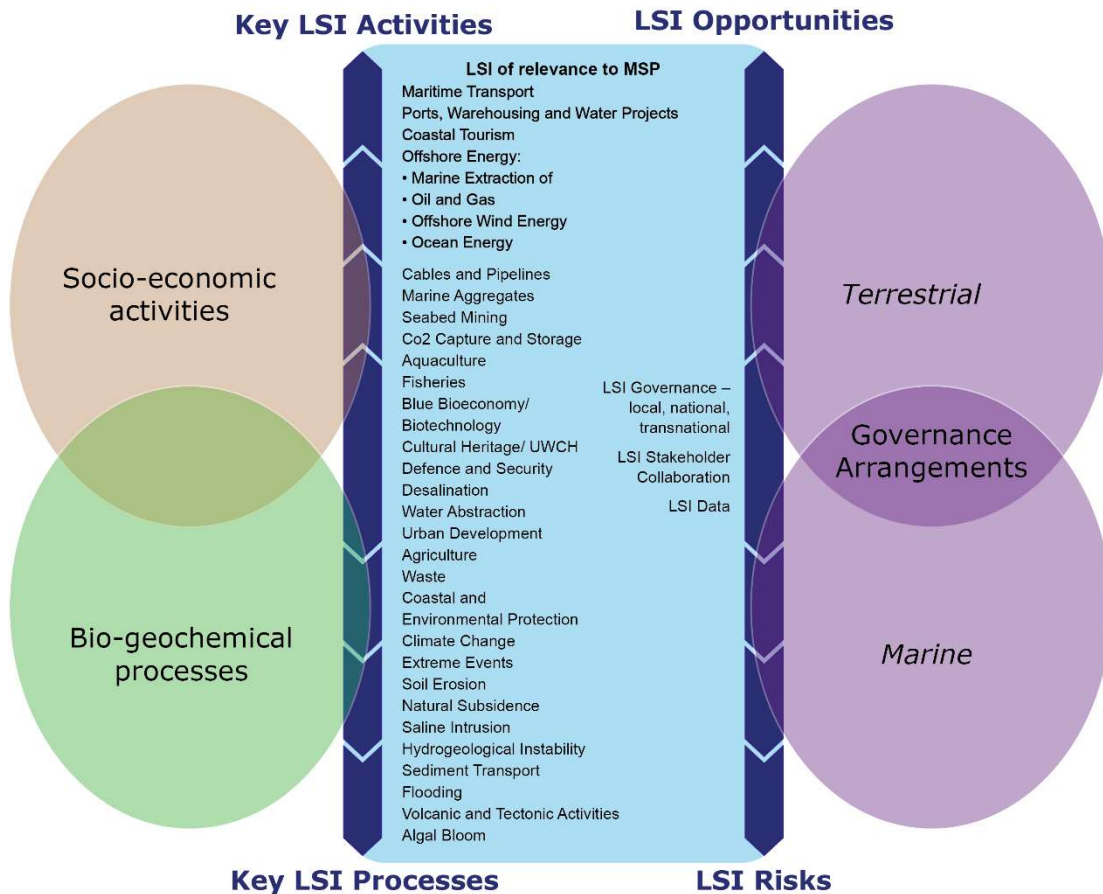
Building out from this overall concept, a general framework for LSI consideration has been developed (see Figure 3) which could be used as a common reference point for initial scoping of LSI considerations in different contexts. The framework extends the ideas set out by the European MSP Platform in 2017 which also aim to assist MSP professionals in implementing the European MSP Directive.

The framework illustrates that LSI is a deeply complex and dynamic phenomenon but provides a means of stepping into this complexity in a structured way. It shows that LSI involve the intricate and constantly shifting interconnections between socio-economic activities both in the sea and on land with natural processes that span the land-sea interface. The experience in both these dimensions is also influenced directly and indirectly by governance arrangements related to marine and terrestrial areas. These form part of the framework conditions that affect the realisation of LSI opportunities and management of LSI risks with underlying concerns for sustainability (achieving a positive balance between economic, environmental and social/cultural concerns) and the closely linked concept of resilience (the ability to respond to pressure/change in an effective way) often seen as key underlying objectives.

The framework also provides a listing of LSI issues that have been recognised as being of potential concern. This could act as an initial, more detailed 'checklist' in identifying which LSI

issues merit particular consideration in a local context. The listing is not comprehensive but has been distilled from a number of sources reflecting recent European MSP research/practice experience related to LSI (European MSP Platform, 2017 i and ii; Ecologic, 2017; SUPREME, 2017; Pan Baltic Scope, 2018; Dutch Ministry of Infrastructure and the Environment and the Dutch Ministry of Economic Affairs, 2015).

Figure 3: MSP-LSI Framework for Considering LSI in MSP



2.3 Defining LSI

The framework set out in Figure 3 could provide a common initial reference point enabling coordinated and comparable examination of LSI in Territorial Planning. However, it seems to be important to complement this with suggested definitions of key related terms which could be the focus of discussion at an early part of any LSI investigation and might help deepen understanding of LSI and associated issues.

LSI: A literature/ practice review revealed the absence of a widely recognised definition of LSI but a number of useful examples to reflect upon including in the sources mentioned above. All these draw attention to the interactions between environmental and socio economic factors across the land sea interface, while some also include reference to governance connections. In addition the need for a two way LSI perspective looking from the land to the sea and from the sea to the land is encouraged. Reference is also made to ‘influence and impact’ which reflect central concerns in territorial planning related to both LSI opportunities and risks. Drawing together the insights gained from the literature/practice review, a definition of LSI of relevance to Territorial Planning is presented in Box 1 which connects with the key LSI dimensions outlined in Figure 3.

Coastal Area: In terms of Coastal Area the definition set out in the Barcelona Convention was considered a useful starting point in LSI exploration. The Convention presents a geomorphological based definition encompassing natural boundaries extending either side of the seashore. However, beyond ecological considerations the Convention notes that social, economic and governance factors may also be taken into account in defining 'coastal areas' and depending upon the criteria being applied the extent of areas to be covered can vary significantly. This suggests the merits of adopting a 'fuzzy' definition of coastal area boundaries.

LSI Core Area: The inherent complexities in defining 'coastal area' however reveals the potential difficulties in assigning clear governance responsibilities in relation to LSI issues. This is particularly relevant to this study which has a central concern with improving spatial planning and governance both on land and for the sea. The Barcelona Convention addresses this by setting out guidelines for a more limited delimitation of 'coastal zone' coverage based on governance factors. With these in mind Parties to the Convention are typically expected to define seaward coastal zone limits that encompass their entire territorial sea and landward limits that encompass the jurisdictional boundaries of defined 'competent coastal units'.

Building on and adapting these Barcelona Convention distinctions for consideration of LSI in Territorial Planning, suggested definitions of Coastal Area and LSI Core Area are also set out.

Box 2: MSP-LSI Definitions of LSI, 'Coastal Area' and 'LSI Core Area'

LSI: *The complex and dynamic interactions through which land-based bio-geochemical processes, socio-economic activities and governance arrangements present opportunities and risks to the marine environment, resources and activities and through which marine bio-geochemical processes, socio-economic activities and governance arrangements present opportunities and risks to the terrestrial environment, resources and activities.'*

Coastal Area: *'an area of land and sea extending either side of the seashore in which the interaction between the marine and land parts occurs in the form of complex social-ecological systems and the relevant geographic area to be included will vary according to ecological, social, economic and governance factors'*

LSI Core Area *'An area of sea defined by relevant marine planning boundaries (for example extending to a nation's EEZ, or marine plan boundary) and adjoining land area defined by relevant landward planning or data gathering boundaries (e.g. terrestrial planning or NUTS regions) where LSI might be anticipated to be most evident'.*

2.4 A Method for Investigating LSI in MSP

To help operationalize LSI investigation particularly with key maritime activities and socio-economic impacts on land in mind the following method is put forward and summarised in Figure 4.

LSI Scoping: LSI scoping is a useful first stage. This might involve an initial discussion with relevant stakeholders about the nature of LSI and what might be meant by the coastal area/core area in order to identify critical issues for further examination.

Governance Analysis: This could entail a review of spatial planning arrangements on land and sea, and the relationships between them, including an identification of who has the competence to deal with LSI agendas at national, regional and local levels. Analysing these findings will help to identify areas where action may be beneficial and who has responsibility for action.

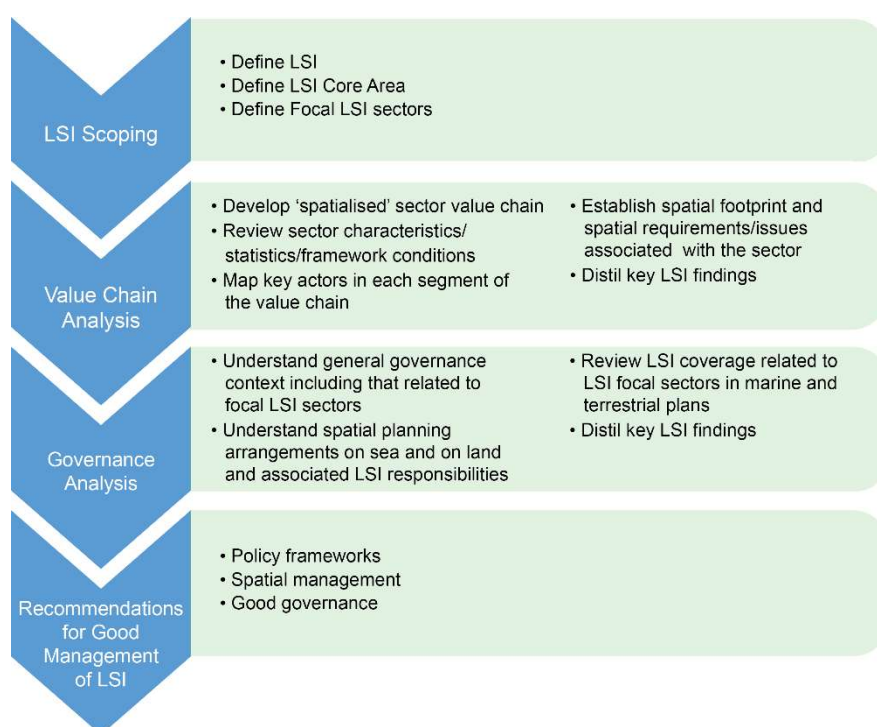
Value Chain Analysis: Based upon established value chain approaches used by the World Trade Organisation and others, the MSP LSI project has developed a spatialized approach to value chain analysis for considering LSI associated with maritime sectors. This helps to explore

the spatial footprint of selected sectors, the spatial connectivity between different value chain segments, and consider the relative 'stickability' of economic and other benefits within coastal communities. From this, a spatial assessment of LSIs associated with selected sectors can be distilled and areas where action may be beneficial can be identified.

Mapping: Mapping activities can assist in defining the boundaries of a core area both on land and sea and visualising findings to support analysis and discussion. Experimentation with different scales of mapping and alternative infographic approaches may be helpful.

Recommendations for Good Management: In this final element, findings from the different aspects of investigations can be brought together to draw out key messages and develop recommendations for good management of LSI in Territorial Planning.

Figure 4: A Method for Exploring LSI in Territorial Planning



2.5 Testing the Method

Five case study investigations have been central to the MSP-LSI research. These have been the lens through which the approach for exploring LSI in a coordinated and comparable manner has been tested and refined. This has informed final guidelines for good management of LSI in MSP and has provided examples drawn from a range of different case study scales and contexts.

The approach to the case studies was guided by the general framework and definitions outlined above.

A summary of the 5 case studies which represent different European regional seas, types of coastlines, sectors and LSI issues is provided in Table 1.

Table 1: MSP-LSI Case Study Areas

Case Study	Regional Sea	Scale of MSP activity	LSI Type-based on ESaTDOR ¹ typology	Character	Territorial Boundary Agreed	MSP Framework	Focal sectors and sub-sectors for LSI
Croatian coast and islands (HR)	Mediterranean (Adriatic)	Sub-national	Transition	Rural	Largely but not ratified	Developing	Coastal Tourism Cruise Shipping
Slovenia (SI)	Mediterranean (Adriatic)	National	Transition/Regional hub	Urban	Disputed in parts and not ratified	Developing	Coastal Tourism Mariculture
Gulf of Gdańsk (PL)	Baltic	Sub-National	Transition	Urban	Yes	MSP pilot embedded in regional seas plan	Maritime Cargo Transport Coastal Tourism
Pomeranian Bight (DE/PL/DK/SE)	Baltic	Trans-national	Transition	Mixed	Largely	Mature	Offshore Wind Energy Coastal Tourism
Dutch North Sea Coast (NL)	North Sea	National	European Core	Mixed	Yes	Mature	Maritime Cargo Transport Offshore Wind Energy

In the following two sections we consider LSI from a governance and value chain perspective drawing upon the case study findings.

¹ European Seas and Territorial Development Opportunities and Risk (EsaTDOR) was an ESPON Applied Research project, see <https://www.espon.eu/estador>

3 Integrating MSP and land-based spatial planning – European experiences

Key Points:

- The idea on one space integrating land and sea as one territory has been embedded in much of the key national planning legislation.
- Despite this legislative integration, planning for the land and sea is often being undertaken by different governmental agencies who respond to different policy agendas.
- The specific form of MSP in a particular country is often shaped by the current characteristics of planning on the land, which are often long-established and reflect such factors such a history, administrative structures and local contexts.
- There is a complex emerging inter-relationship between MSP and other policy frameworks that constitute the territorial agenda.
- MSP is often being delivered at a strategic scale, with an emphasis on national priorities. This can often lead to conflicts with locally more important agendas, especially in the fields of tourism and fisheries, where employment opportunities and resources tend to stick.
- Evidence of good processes around stakeholder participatory events is evident, but this does not necessarily mean that a consensus is being reached. Ultimately the plans and decisions as to which licences for maritime activities to issue are political judgements based on an assessment of the evidence.

Drawing upon the COMPASS project (Comparative Analysis of Territorial Governance and Spatial Planning Systems in Europe) (Nadin et al 2018), it is interesting to note that the project's focus, and indeed jurisdictional competence for action, was almost exclusively confined to the land. There were some brief observations that only in Northern Europe some limited mention was made as to the fact that marine space was emerging as a new and important territorial policy domain. In this section, we explore the existing and emerging mechanisms for integrating MSP and land based spatial planning and the role that these policy frameworks can have for recognising and addressing land sea interaction issues.

It is important from the outset to recognise that MSP is one of many framework conditions that shapes development activities on the land or in the sea. Other critical policy drivers, private sector investment decisions and level of support given to various sector activities are also critical factors shaping development opportunities and influencing risks. Nevertheless, MSP can and does have an important role to play in shaping the territorial consequences of land sea interactions through:

- **Policy Frameworks.** Maritime spatial plans can play a role in wider policy formulation and delivery that seeks to guide territorial development in a positive way, by beginning to think strategically about the spatial implications and priorities for the increasing numbers of sectors and activities that require maritime space. MSP does not operate in a vacuum, but forms part of a wider framework of policy process informing territorial development on both land and sea. In other cases MSP may seek, from a spatial policy perspective, to restrict or limit development that is likely to conflict with other key priorities and/or might be deemed to cause disproportionate environmental harm.

- **Spatial management.** It is generally assumed that MSP will lead to the allocation of marine space for specific maritime activities, which will then inform more specific licensing conditions or other forms of authorisation. Here the purpose is to manage the use of marine space and to ensure that certain activities are provided with the geographical areas they require.
- **Good Governance.** This suggests that the process of MSP should provide an opportunity for open transparent and integrated discussion, both vertically and horizontally between MSP policy makers and other critical stakeholders. These processes of engagement are productive in themselves, as they draw together a range of stakeholders and can facilitate an exchange of views including discussion of divergent opinions and the exploration of satisfactory solutions. MSP should be a mechanism for building capacity for good governance of marine and coastal activities/LSI issues reaching beyond the production of the marine space.

In order to explore the current roles and potential impacts of emerging practice in relation to MSP and LSI, each of the case study areas were subject to a review of the planning and policy arrangements that were evident both in the sea and on the land. In this section we seek to provide a synthesis overview drawn from all of the case study material identifying common themes and differences. In so doing, it is important to highlight the complexities of these agendas. There are a range of different European policies that are impacting on marine space and therefore on land sea interactions. These policy frameworks are then, dependent on specific country contexts, being translated into national policy agendas and priorities. These will vary enormously from place to place depending on the opportunities and risks. For example, wind energy potential can only effectively be realised in northern Europe. In the Adriatic its potential is limited. On the land it is important to remember that, despite common issues and European wide policy agendas, land use/territorial/spatial planning systems remain an exclusive national competence of each country and these specific systems reflect the history, administrative structures and particular economic, social cultural and political priorities of that country. In the sea, the system of planning is also a reflection of individual national contexts. Therefore, whilst marine spatial planning might remain a common European objective, its form and structure is country specific and in many cases is being overlain on more established spatial planning systems on the land use. In the following sections, we explore a number of different but inter-related themes, based around the ideas of:

- **Policy Frameworks.** What is the legal context for territorial planning? What competences are embedded in the institutional arrangements for territorial planning in the sea and on the land at a variety of spatial scales? What plans and strategies have been and are being prepared in the land and sea and what influences can they have on land based planning, sectors and LSI issues.
- **Spatial Management.** How is the development of marine based activities regulated and authorised and how do these processes manage land sea interactions?
- **Good Governance** How are open and transparent decision making processes being embedded in LSI decision making processes?

The analysis is inevitably a snapshot of the current situation. It is also evident that marine spatial planning, as a relatively newer activity and its interrelationship with more traditional forms of land based planning is rapidly evolving. In some places MSP plans have been established for a while (Netherlands and Germany) in other areas plans will soon be adopted (Poland) and elsewhere the journey is just beginning (Slovenia and Croatia). At this moment in time, there is considerable potential to learn from emerging practices and to think more carefully about how tensions between national strategic priorities and more local interests can be reconciled.

3.1 Policy Frameworks

The Legislative Context for Territorial Planning

The legislative competences for land, sea and/or integrated territorial planning is, in many of our case study areas, longstanding. For example, in Germany responsibility for the Länder to plan out to the limits of the territorial waters has existed at least since 2001. So whilst the MSP Directive dates from 2014, many countries have had legislation in place which predates this, although there have been more recent updates which in part, although not exclusively is a response to this European legislation, for example in Croatia and Poland (see Table 3).

Furthermore planning legislation for both the land and sea often considers the national territory as integrated whole; although at the moment, there is still a tendency to separate out the land domain from the maritime domain. Germany exhibits a mixed system, in part a function of the fact that the Länder have jurisdictional competence for the planning of the seas out to the territorial waters, and from these boundaries out to the EEZ planning and management in the sea becomes a national responsibility. In Slovenia, especially in the inland water areas around the islands the regional and municipal governments have for many years had a responsibility for planning within the maritime areas and the administrative boundaries of these domains include a significant amount of marine space.

When the legislation is relatively new, or has recently been updated (see for example Slovenia and Croatia), how this legislation is being operationalised remains an emerging agenda, and in some cases plans and strategies still have to be prepared. Where strategies exist, or are close to being adopted, there is a mixed pattern with some strategies straddling the land and sea divide, and where they are currently separated there is an aspiration for a more integrated approach moving forward.

From a legislative perspective, at least, what this brief review suggests is that any separation of land based and sea based planning is a myth. Many countries already have primary legislation which treats these two parts of the territory, the land and the sea, as one integrated whole. Furthermore, where there is currently some distinction in planning for these two regimes, there is a strong aspiration to better integrate these two spaces as part of a territorial whole. Finally, planning reform is a constant and ongoing process as countries explicitly adapt to new EU Directives (e.g. Slovenia) and seek to respond to new agendas and streamline processes (e.g. Netherlands).

Table 2: Legislative Competences for Territorial Planning

	Territorial Planning Legislation	Degree of Integration
Croatian Coast and Islands	Physical Planning Act of 2013, (amended in 2017 to take into account the EU MSP Directive 2014/89/EU) looks at planning for the whole territory, and in the absence of an EEZ, out to the Protected Ecological and Fishing Area.	Integrative approach at national regional and local levels, with both the regional and local administrations having boundaries extending into the sea.
Gulf of Gdańsk	Spatial Planning and Management Act of 2003 (recently modified in 2018) and the Act on the Sea Areas of the Republic of Poland and maritime administration 1991.	Currently separation of planning for the land and sea, albeit within an integrated national policy context with vision out to 2030.
Netherlands	Spatial Planning Act (2008) re-defined the legal framework for spatial planning for the land, territorial waters and out to the Exclusive Economic Zone. The notion of an integrated space also evident in the National Water Act.	Integrative approach and further streamlining planned. Environment and Planning Act (Omgevingswet) streamlining the current system expected in 2019.
Slovenia	Spatial Planning Act 2017 (came into force June 2018)	Integrative approach envisaged through a single body, the Ministry for Environment and Spatial Planning who is preparing national spatial documents for land and sea.
Pomeranian Bight	Germany- Länder have had responsibilities out to the limits of territorial waters at least since 2001. The Spatial Planning Act 2017- gives the nation state responsibility for MSP in the EEZ. Poland- Spatial Planning and Management Act of 2003 (recently modified in 2018) and the Act on the Sea Areas of the Republic of Poland and maritime administration 1991.	Germany: Länder spatial planning includes territorial sea areas, and close collaboration between national and Länder bodies for planning across marine space. Poland: Currently separation of planning for the land and sea, albeit within an integrated national policy context with vision out to 2030. Transnational/cross-border collaboration working across land/sea integration facilitated by well-established networks VASAB etc.

Competent Bodies for Territorial Planning

Whilst most of the planning activities take place within national jurisdictions, there is a widespread recognition that, particularly within the context of many of Europe's relatively enclosed seas, the consequences of LSI are often of transnational and cross border nature. From this perspective, many mechanisms exist to facilitate cross border co-operation. In the Pomeranian Bight, for example, MSP mechanisms have been established to support exchange and intensify cross border co-operation. There is a 'Common Future Vision for the German-Polish Interaction Area - Horizon 2030' (2016), with action plans and priorities focused on a number of strategic priorities, including:-

- Transboundary economic clusters based on local value chains;
- Increasing the intensity of tourism development;
- Improving energy security; and
- Promoting sustainable blue growth through co-ordinated MSPs in the interconnected marine space.

This cross-border collaboration sits within the broader spatial visioning for the whole of the Baltic Sea through VASAB.

Within the national contexts territorial planning for the land and sea is divided between a number of different government departments and agencies, reflecting the characteristics of particular country contexts. Territorial planning is often reflecting a spatial articulation of various national sectoral interests, protecting shipping lanes, concern for environmental quality and enhancing eco-system services, promoting low carbon energy production, whilst seeking to sustain traditional maritime activities, such as coastal tourism which are often critical to local economies.

In the marine environment, planning responsibilities can be

- integrated, led by a key body covering both domains,
- separated led by a body for the land and sea, or
- mixed, in the case of Germany, given the shared jurisdictional competence, a combination of the two.

In some instances, the competence for integrated territorial planning might be relatively new, even though the governmental institution may be well established. Furthermore, with MSP being a relatively new framework, the majority of case study areas have not, as yet formally adopted plans for the sea, although there is an expectation that plans will be in place by 2021.

Whilst MSP activity extends to the outermost limits of a countries national jurisdiction, the Exclusive Economic Zone (or in Croatia's case Protected Ecological Fishing Area (ZERP)), it would be wrong to assume that these boundaries are uncontested. Indeed there are many examples where boundaries within the sea areas are disputed. But in many cases, at least from a planning perspective neighbouring nation states are finding pragmatic mechanisms to reconcile these differences in terms of developing marine policy.

Table 3: Key Actors involved in Territorial Planning

	Key Actors and Agencies involved in LSI	
	Sea	Land
Croatia Coast and Islands	The Ministry of Construction and Spatial Planning and the Croatian Institute for Spatial Planning Regional Bodies Municipalities	The Ministry of Construction and Spatial Planning and the Croatian Institute for Spatial Planning Regional Bodies Municipalities
Gulf of Gdańsk	Directors of the Maritime Office to prepare the MSP Minister responsible for matters of maritime economy	Voivodeship Municipalities (gmina) taking into account higher level strategies
Netherlands	Interdepartmental Directives Consultative Body (IDON) under the leadership of Ministry of Infrastructure and Water Management co-ordinates plan and policy making in the sea	Largely the responsibility of coast municipalities, with 1km jurisdiction into the sea
Slovenia	Ministry of the Environment and Spatial Planning	Ministry of the Environment and Spatial Planning Municipalities
Pomeranian Bight	Germany-The Federal Ministry of the Interior, Building and Community along with other ministries supervises the Federal Maritime and Hydrographic Agency (BSH) in MSP matters deals with the EEZ area Ministry of Energy, Infrastructure and Digitalisation of Mecklenburg-Vorpommern deals with marine areas out to the territorial waters. Poland- Directors of the Maritime Office to prepare the MSP Minister responsible for matters of maritime economy	Bund provides legal basis of land use planning. Land of Mecklenburg-Vorpommern produces one regional development plan, the State Development Programme at a scale of 1:250,000. Four municipal planning regions prepare regional plans at a scale of 1:100,000; these are derived from the State Development Programme Voivodeships Municipalities(gmina) taking into account higher level strategies

Instruments for Marine Spatial Planning

Closer examination of the forms of MSP documents that are emerging reveals a variety of approaches. These include framework documents which identify priorities for sea use (e.g. Poland and Netherlands) which have been or are being translated into various strategies. Alternatively, some countries are developing strategic spatial plans, supplemented by detailed

regulatory documents. In others, the main focus is upon precise zoning of the sea in order to protect areas from development or identify areas where particular forms of activity could be authorized. A summary of the current spatial planning frameworks is given in table 4

Table 4: Current Spatial Planning Frameworks

	Existing Marine Spatial Planning Frameworks
Croatia Coast and Islands	Spatial plans are beginning to emerge and within the marine environment, different plans will cover different parts of the marine environment. There is an intention to create integrated plans for the land and sea at national regional and local scales within the inland waters. Other plans will be prepared for the epicontinental shelf and the waters out to the edge of the Protected Ecological Fishing Area (ZERP). In addition, the special plans for the national parks that cover land and sea are due to be reviewed. Overall, the structure of the system is in place but plans have yet to emerge. MSP will be largely nationally led, with land-based plans being developed at the local, municipal scale.
Gulf of Gdańsk	An integrated 'Maritime Policy for the Republic of Poland until 2020 (with the 2030 perspective)' is the strategic document for sea use in Poland. This guides the development of the Maritime Spatial Plan of the Polish Sea Areas. A second draft has recently been published (January 2019). This provides a detailed zoning of the marine waters into a large number of distinct sea uses/categories which determine what, if any, development might be permitted in the sea. In September 2019 the draft plan at a scale 1:200 000 will be finished and following transnational consultations with neighbouring countries in accordance with the Espoo Convention, it will be submitted to the Minister responsible for matters of the maritime economy in order to be adopted by regulation. The plan will be adopted not later than 31 March 2021. Planning in the sea and on the land is currently separate and sea based planning has, to date, largely been shaped by land based uses and priorities although it is anticipated that once approved marine planning and land based planning can beginning to have more of a symbiotic relationship.
Netherlands	The current spatial vision for MSP in the Netherlands is laid out in the policy Document on the North Sea 2016-2021, an appendix to the National Water Plan. This covers all the marine space beyond that is 1km offshore, which is the responsibility of the municipalities.
Slovenia	A marine spatial plan covering the marine territory of Slovenia is being prepared and stakeholder consultation has been facilitated through the SUPREME project. It is too early to speculate on the nature and form of the plan itself but national priorities include nature protection and fisheries, motorways of the sea and access to the Port of Koper.
Pomeranian Bight	Collaborative mechanisms exist to promote cross border co-operation in relations to issues of mutual interest, but planning frameworks are at different stages of preparation in Poland and Germany. In Germany two different types of strategic plans covering the sea exist. From the territorial waters out to the EEZ the plan provides a framework for sea use prepared on behalf of the Federal Government. Within territorial waters one key planning documents is relevant, the Länder wide

	<p>Mecklenburg-Vorpommern. Spatial Development Programme. Onshore this programme is underpinned by a more spatially focused Regional Spatial Development Programme for Vorpommern, Both deal with the critical LSI issues. The State Development Programme was last updated in 2016.</p> <p>In Poland a more detailed style zoning plan is emerging (see Gulf of Gdańsk)</p>
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3.2 Spatial Management

Whilst the legislation is suggesting an integrated approach, and the promotion of the idea of a 'one space' approach in terms of territorial competences to make decisions, the extent to which this is actually operationalised in practice is limited (see table 5). With those maritime sectors that are of primary concern to MSP, the development activities that are required to support such activities are often land based and the responsibility for authorisation lies with land based planning agencies.

Furthermore, many local land based authorities have limited competences within the sea. These either extend to the shoreline or a maximum of 1 km offshore (in the case of the Dutch municipalities). A notable exception is in Croatia, where in planning terms, the regions and the municipalities are expected to produce plans that cover the land and sea out to the edge of the inland waters. So planning at this local level, and the responsibility for regulating development on the land or in the sea, is often a local competence. There is however, always an expectation that all lower level plans should be in broad conformity with higher-level (national and regional) plans, strategies, and policies. This is in theory as many of these plans are in urgent need of being updated.

Similarly, with some notable exceptions, marine based authorities have relatively limited power to determine what landward development, which might be of significance for marine spatial planning, should be permitted or not. One such exception is experienced in Poland, where the Directors of the Maritime Offices, have a long established power and responsibility to veto land based plans that might potentially be damaging to coastal defensive systems, and thereby increase the risk of coastal flooding and pose concerns for citizens' health and wellbeing.

In many of the case study areas maritime transport is the most important national LSI issue. A key role of MSP is to protect shipping lanes and, where necessary, modify these to enable other uses in the sea to occur, (see for example, the Netherlands) although this can often lead to conflicts between different user interests (see for example, Piran Bay). However when it comes to the need to update port infrastructure on the coast and/or consider the implications of landward based infrastructure, marine based authorities have little role to play, but they can, and have facilitated a broader debate as to what the land based consequences of such actions might be.

Offshore wind is one of the newer forms of activity that has emerged in the sea which requires some form of sea based licencing to be granted before development can occur. This has created controversy in some areas. In both Poland and the Netherlands, norms have been created at national level that offshore wind turbines should be sited at a sufficient distance from the coast to protect a free view of the horizon. This means that offshore wind farms are required to be situated beyond the territorial waters.

In Germany, beyond the territorial waters and out to the EEZ, the development plan (Flächenentwicklungsplan (FEP)) determines where wind energy may be developed, after which sites within these areas are auctioned off by the Bundesnetzagentur. The Federal Offshore Planning body prepares these plans and the winning bidder may construct offshore wind turbines and connections to the onshore grid. Some of the initial projects were subsidised to encourage the private sector to invest, but the withdrawal of these subsidies has created some doubt as to

when and whether new offshore wind farms will actually be developed. However, a recent round of bidding suggests that feed-in tariffs are sufficient to stimulate private sector activity. What this example illustrates is that a national priority can be planned for and the appropriate authorizations provided, but the same body does not necessarily undertake these. Both of these activities can rightly be considered as part of a marine spatial planning competence. However, implementation, or commissioning of further offshore installations might be inhibited if the return on investment by the private sector is considered insufficient. Within the maritime space overseen by the Länder conflict has emerged with the potential siting of at least one array within territorial waters. Here, local tourism providers are arguing that this will adversely affect the attractiveness of the area to visitors and hence affect the tourism industry, which is a significant local employer.

Table 5: Illustrative examples of MSPs' Role in Regulating LSI issues

	MSPs Role in Regulating LSI Activities
Croatia Coast and Islands	The Physical Planning Act places restrictions on marine activities and coastal development (which should be no closer than 100m from the coastline) within Protected Coastal areas (zones of special interest). The Strategy for Spatial Development requires an integrated approach to coastal planning – between national regional and local governance bodies and various stakeholders.
Gulf of Gdańsk	The Directors of the Maritime Offices can veto urban development, or more specifically the plans of municipalities, if they consider that the developments will adversely affect coastal defence systems.
Netherlands	Recognising the spatial reach of logistic flows from the sea to the land associated with port facilities, a project exploring such issues was initiated and IDON is expected to take this further in the future. With wind energy, good processes of collaboration have been established. These include a code of conduct from the National Wind Energy Association which sets out basic rules for stakeholder engagement (including the public). Through this code changes in shipping routes have been identified which have enabled offshore wind concessions to be realised. The Policy Document on the North Sea, also establishes the concept of a free view of the horizon from the coast, meaning wind turbines should be at least 12 nautical miles from the shoreline.
Slovenia	The Waters Act seeks to protect and regulate water quality in the sea, on land and underground, and this can limit development in the Key Protected Areas. There is recognition that finding any new space for expansion of existing uses will require compromise. There are tensions between protecting natural areas, developing tourism and mariculture, and increasing port capacity at Koper and alongside the associated increases in marine traffic. MSP seeks to reconcile these conflicts. Meanwhile the municipalities are in the process of updating their own local plans focused on tourism development.
Pomeranian Bight	For PL – See above Gdańsk Bay The updated Spatial Development Plan for Mecklenburg-Vorpommern (adopted 2016) was more cognisant than earlier versions of the plan of LSI issues, for example safeguarding shipping, promoting offshore wind

	energy in accordance with national policy and safeguarding the natural environment.
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Within the Netherlands there are extremely ambitious national plans to generate offshore renewable energy. Suitable sea areas have been identified, and shipping lanes adjusted to help deliver such aspirations. This was facilitated through marine spatial planning re-allocating marine space to accommodate such uses. By 2017, 957 megawatts of electricity were being generated from four operational offshore wind farms, and ambitiously a further 4.2 GW of capacity was envisaged as being developed out to 2022. However, this would represent less than 50% of the potential 11.5GW of installed capacity in the Dutch North Sea, which if fully realised, could create up to 13,000 full time jobs. The licensing processes (usually of up to 20 years) are issued by the Netherlands Enterprise Agency, part of the Ministry of Economic Affairs and Climate Policy. Again, there are growing concerns as to whether the wind energy providers can be sufficiently incentivised to deliver. What this illustrates is that MSP, as an activity, is extremely complex and involves co-ordinated action from many different actors and agencies in order to deliver an agreed policy objective. In the Netherlands:-

- There is a strong national strategic policy framework for a significant increase in offshore wind provision, which, following extensive consultation, has broad public support;
- There is a spatial framework where space for these activities has been created and spaces for other activities modified;
- There is a process of licencing development and ensuring that connectivity to the onshore grid is achieved.

All these activities need to be co-ordinated, but are not being carried out through a single plan or agency, but through collaborative action. This is an excellent example of good integrated maritime spatial planning thinking, but also reveals the complexity of the process.

3.3 The Importance of Good Governance

Whilst there is considerable variation in who has authority over marine space, whether it is an exclusive competence of national bodies or shared between national, regional and local entities, what is clear is that competition for use of this space is intense. Choices need to be made in determining which activities should have priority in particular parts of that marine space. This can then lead to different types of policy frameworks. Some can be aspatial in character, other produce various spatial plans promoting development and/or protecting critical marine assets from the negative impacts of development and finally their mechanisms for regulating/licencing or authorizing development both on land and in the sea. To further complicate matters, those bodies responsible for making plans and spatial strategies are not necessarily the same bodies responsible for licencing activities especially within the marine context. At the moment, it would appear that largely land based agendas, demand for low carbon energy, importance of marine transport for global trade, the need for a good marine environment to support coastal tourism are the critical agendas influencing the way marine space is being conceived. However, once the initial marine plans have been adopted, some anticipate that some of these marine plans and frameworks might start to exert more influence in shaping land based agendas and sector policies. It has also become clear that implementation, which is not so evident in MSP to date, will often depend on other framework conditions being supportive and encouraging the private sector to deliver. These are often beyond the scope of what might traditionally be thought of as MSP. This complex interplay of issues and agendas, policy frameworks and spatial strategies is what collectively can be described as marine spatial planning. The precise form, structure and institutional arrangements are country specific and MSP's success or impact will be dependent on good governance arrangements. This will require effective horizontal and vertical integration,

not just with governmental stakeholders, but critical with private and civic society interests all whom have a strong interest in how the sea is managed now and in the future.

The case studies provide lots of good evidence of how horizontal integration, especially at a national level is being facilitated through the creation of co-ordinating bodies. In Poland, for example, marine planning is carried out by the Directors of Maritime Offices, of which there are three, under the direction of the Ministry of Maritime Economy and Inland Navigation and Ministry of Investment and Development in consultation with other Ministries with functional sectoral responsibilities (environment, water management heritage protection agriculture, fisheries, internal affairs and defence). In the Netherlands, the Dutch Ministry of Infrastructure and Water Management takes the lead and an Inter-departmental Directors Consultative Body North Sea (IDON) produces the plan. This only needs to take account of other interests, but co-ordinating other Ministries' interests, such as the Ministry of Infrastructure and Water, Rijkswaterstaat, The Ministries of Economic Affairs and Climate Policy, of Agriculture, Nature and Food Quality, of Internal Affairs, of Education, Culture and Science, and the Ministry of Defence and the Coastguard.

Concerning vertical integration there is lots of evidence of dialogue taking place in trying to reconcile national priorities with more local interests. In some places, this has been facilitated through research projects and consultants. For example, in Piran Bay dialogue between national government and local stakeholders, (municipalities, tourism providers, nature conservation and heritage interests, port authorities, mariculture etc.) is being facilitated through European funding for projects such as Shape, Adriplan, SUPREME as well as the ESPON MSP-LSI project. Through stakeholder discussions, debates, and the use of scenarios the critical issues and priorities for the use of sea space is emerging. How the plan reconciles these competing interests remains to be seen. However, the use of European funding to help facilitate the process and build capacity is seen as critical for some countries especially Slovenia and Croatia.

This analysis suggests good governance is critical in MSP, but it also raises interesting questions as to whether MSP should be considered from the perspective of a product (a framework, a plan or a decision) or a process of iterative refinement, debate and influence across sectors and territorial spaces, treating the land and sea as an integrated whole. Currently a lot of effort is being placed on stakeholder engagement in helping to prepare the plans. Institutional capacity has been built to enable this to happen. In the Netherlands, it seems to be embedded within the existing institutions, although there is an acknowledgement that future plan making would benefit from more local stakeholder engagement. In both Poland and Slovenia consultants are either proactively helping with the process, or heavily engaged in the production of the plan. However, if the plan is primarily considered as a product, produced at a particular point in time, and reviewed periodically, questions are beginning to be raised as to how to maintain or build the capacity and enthusiasm to sustain the dialogue beyond plan adoption, so that influences from the sea to land based policies can be enhanced. This seems to be an aspiration of many systems. At this moment in the evolution of MSP, we would argue that many marine planning regimes are being shaped by a variety of land based sectoral interests. With several countries utilising external help to facilitate delivery of these plans, this is creating, at least in the short term, the enabling capacity to facilitate stakeholder engagement. This raises questions about the capacity of the key bodies charged with MSP to deliver. The workshops in Gdańsk Bay, Slovenia and Croatia could be characterised as indicating there is an enthusiasm and appetite for meaningful participation from a range of stakeholders. However, once a plan has been produced, there are long time frames before the plans needed to be reviewed (e.g. 10 years in Poland, as prescribed by the MSP Directive), there is concern that the institutional learning and capacity that has developed in the last couple of years may be lost. There remains a question, in many countries, of how to build and maintain capacity to deal with these issues, once the immediate priority of plan preparation and adoption is completed. This raises important questions about MSPs role as a planning process or a series of planning products.

4 The spatial footprint of maritime activities and their 'stickability'

Key Points:

- The new approach to **spatializing** Value Chain Analysis of maritime activities is a key output of the MSP-LSI research and is an innovative contribution to the study of LSI.
- It highlights that maritime activities which are the focus of MSP have significant landward footprints and impacts which extend locally to coastal communities, but also regionally, nationally and internationally.
- It highlights the variety of experience between maritime sectors, with some of great strategic importance but with low economic 'stickability' at the coast, while others which are of great local significance may be compromised by national and international concerns.
- The analysis confirms the importance of a 'One Space' view of Territorial Planning

4.1 What does this new Approach to Value Chain Analysis include?

A central focus in the MSP-LSI study has been consideration of the main spatial impacts on land of key maritime activities. By focusing on the spatial footprint and spatial connections between different value chain segments the project has developed an approach to tailoring Value Chains and associated steps in a Value Chain Analysis with the particular needs of territorial planning in mind. This new spatialized approach is an innovative contribution to the study of LSI as it not only enables exploration of the spatial footprint of maritime activities and associated LSI, it also helps to identify where the costs and benefits of particular maritime sectors stick. The concept of 'stickability' is an important framing device for policy makers in both MSP and Terrestrial Planning in helping to consider LSI and guide decision making.

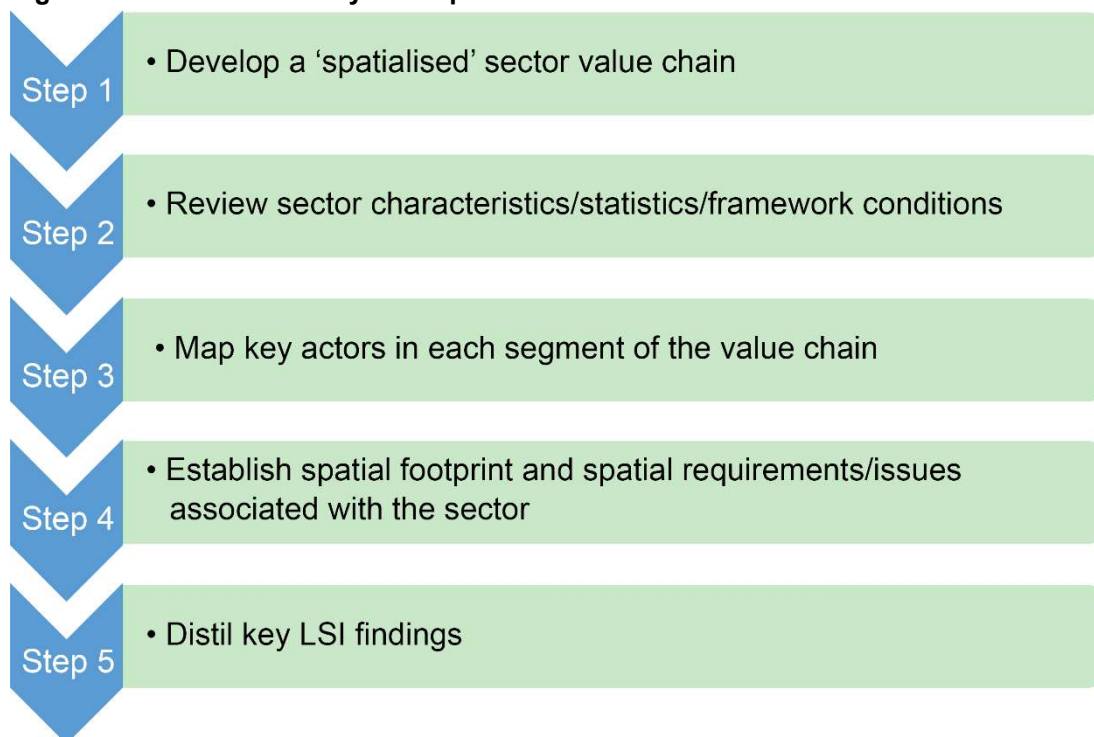
The approach begins with adapting general sector value chains published for example by the World Trade Organisation for use in Territorial Planning in order to highlight different segments of activity, envisage their spatial impact, and how they connect together.

This is followed by defining key sector characteristics and assembling associated statistics to gain an appreciation of how it operates, its relative significance (in terms of employment for example) and trends in its local context. Subsequently key framework conditions that influence the way the sector has, and is likely to perform, are explored. This includes sector related policies and strategies (not necessarily spatial planning orientated), factors that may influence the economics of the sector including competition from other areas, availability of labour etc. and environmental conditions.

Using the different segments in the value chain to define relevant sector NACE codes and background information related to the sector, the next step is to map key actors and gain an insight into their geographic concentration or spread. Mapping to visualize the spatial footprint of the sector can be valuable. It is important to recognize that the identification of key actors will, of necessity, be a qualitative exercise (as detailed company level data sets may be difficult to assemble) and may be undertaken as a desk-based exercise and/or as part of a stakeholder workshop. Using the different segments in the value chain to define relevant sector NACE codes can be a useful starting point.

Drawing these strands of analysis together, an assessment of LSI sectors can be made, overall findings can be summarized and recommendations for Territorial Planning responses can be developed. (See Figure 5)

Figure 5: Value Chain Analysis Steps



Source: MSP-LSI Project Team

How might Value Chain Analysis be of use in European Territorial Planning?

The approach to Value Chain Analysis developed in the MSP-LSI Study could be of use in European Territorial Planning in a number of ways by:

- Exploring LSIs associated with maritime sectors
- Developing an understanding of why a 'One Space' definition of Territorial Planning might be important
- Facilitating an understanding of the operation of different sectors and their relative significance, locally, regionally, nationally, and internationally.
- Highlighting how territorial planning fits alongside other sector specific policies and how it can support these through plans, regulation and governance approaches associated with territorial planning activities.

The following sections draw upon the case study investigations to illustrate the approach and highlight some key findings in relation to Coastal Tourism, Cruise Tourism, Maritime Cargo Transport, Offshore Wind Energy and Mariculture.

4.2 Value Chain Analysis: Coastal Tourism

Key Points

- In all the case study areas where this was a focal sector, Coastal Tourism was the most significant economic sector in terms of local employment, with high levels of local 'stickability' of associated economic benefits.
- Identification of coastal tourist home locations revealed the very extensive (international, national and regional) spatial connections of all of the case study areas.
- All areas experienced a strong concentration of visitors in the summer months.
- Most visitors tended to arrive by car. Consequently, the provision of more sustainable transportation networks (public transport, cycling and walking), for travel to and from tourist destinations and visiting locations during tourist stays is a key territorial planning consideration.
- Improving the sustainability of coastal tourism and extending the range and seasonality of services for coastal tourists are key concerns for tourism development strategies at all levels of governance.

Coastal tourism was selected as a focal sector for Value Chain Analysis in the Croatia Coast and Islands, Gulf of Gdańsk, Pomeranian Bight and Slovenian case studies.

Coastal Tourism and Europe's Blue Economy

Coastal tourism is the largest sector in Europe's Blue Economy with around 2.127 million persons directly employed in 2016 (up 4 % compared to 2012). It accounted for 40% of GVA and 60% employment in the Blue Economy in that year and its share of these has risen over time (EC, 2018a). Coastal municipalities make up only 15% of the land area of the European Union however, 47% of all nights in paid accommodation are spent there.

Coastal tourism offers good opportunities for new entrants to the labour market but the work is often temporary, seasonal and poorly paid. These characteristics are amongst the factors accounting for the relatively weak performance in terms of GDP of many coastal areas in Europe (see Map 1). Reducing the precariousness and increasing the number of high value jobs are therefore the primary objectives of the European Commission's 2014 strategy for coastal and marine tourism alongside reducing the sectors' environmental footprint (EC, 2017).

Map 1: GDP in coastal regions 2016 (euros/inhabitant compared to national average)

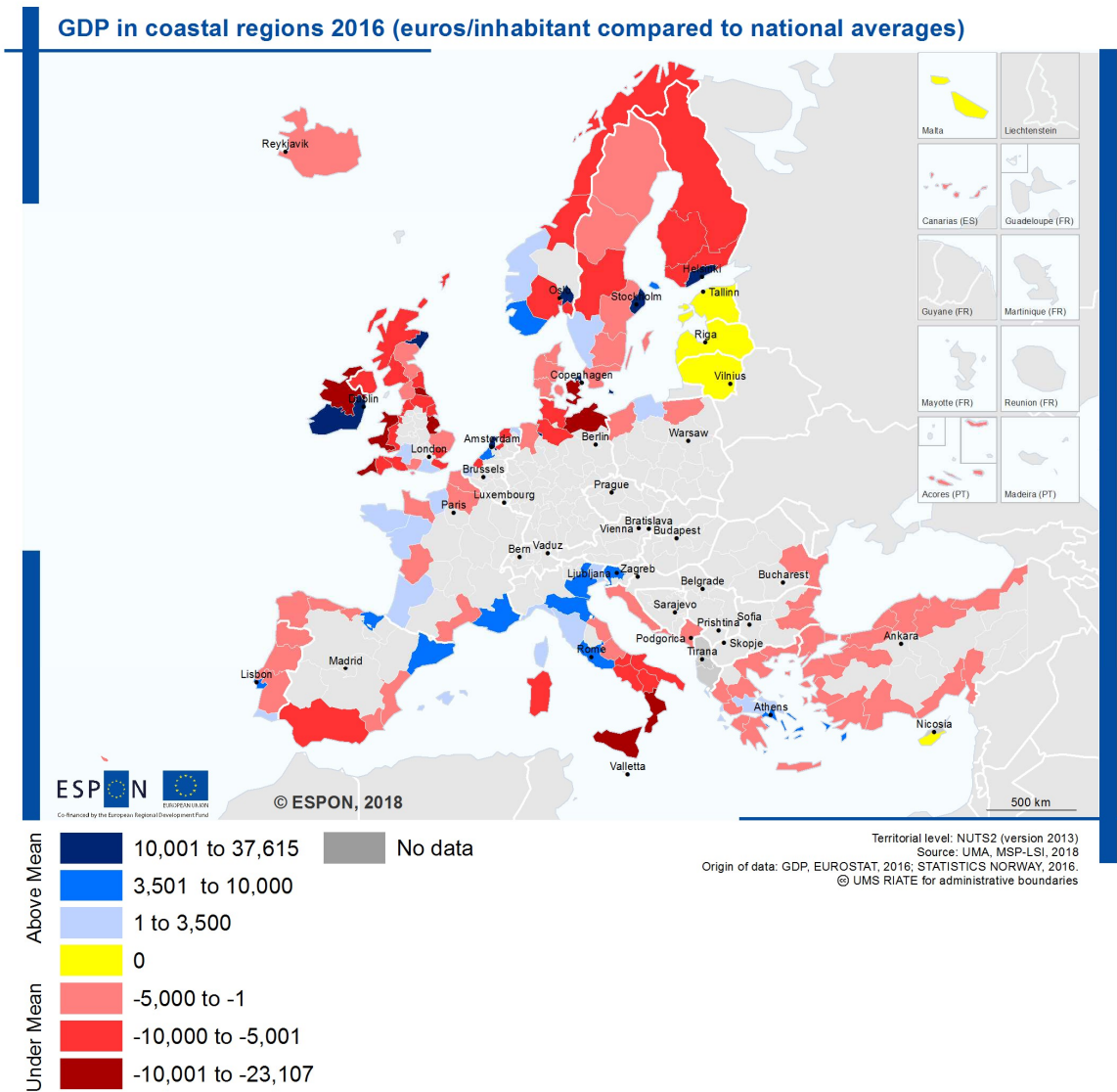


Figure 5: The Coastal Tourism Value Chain

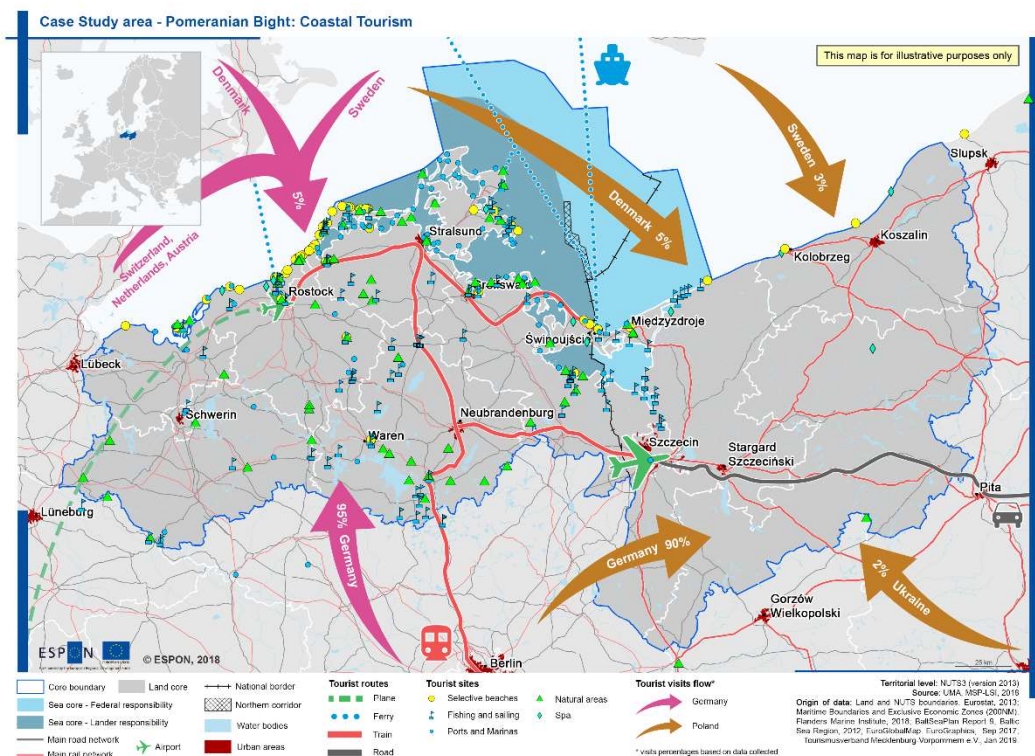


The Coastal Tourism value chain (see Figure 6) starts and ends with the identification of tourists' **home location**, and includes the **transport** connections that they use to travel to **coastal destinations and visitors locations** which are the main focus of coastal tourism activities.

Following the Value Chain - what are the main impacts on land of Coastal Tourism?

Home Location: In terms of coastal tourist home locations, very extensive spatial connections were identified in all the case study areas. In 2017, almost 90% of tourists to Croatia were from other countries, particularly Germany, Slovenia, Austria, Poland and the Czech Republic, but also with notable numbers of visitors from other parts of Europe and a wide range of international locations. In Slovenia where the Municipality of Piran was the particular focus for examination, 67% of overnight stays involved foreign tourists with visitors from Italy and Austria being most prominent. In contrast, on both sides of the German /Polish border in the Pomeranian Bight (see Map 2) and in the Gulf of Gdańsk more than 75% of visitors arrived from within the respective countries, but links with other Baltic Sea countries were also prominent and growing in significance.

Map 2: Coastal Tourism Flows in the Pomeranian Bight



Transport: Transport from and returning to these home destinations therefore presents one of the most significant impacts on land associated with Coastal Tourism particularly when the size and distribution of the tourist flows are considered. For example, in 2016 Mecklenburg-Vorpommern in the Pomeranian Bight (the number one tourist destination in Germany) saw 30.3 million overnight stays and in 2017, Croatia accommodated 17.4 million tourists mainly in its coastal and island areas. Although visitor numbers were fewer in the other case study areas they were still noteworthy in the local context. In all cases there was a strong concentration in the summer months. Providing transport infrastructure to deal with the scale and seasonality of these tourist flows is critical to the successful operation of the sector. While maritime passenger transport is an aspect of provision most notably in Croatia, and air transport is also of growing significance, in all areas most visitors tend to arrive by car putting considerable pressure on local infrastructure at peak times. Consequently, the provision of more sustainable transportation

networks (public transport, cycling and walking), for travel to and from tourist destinations and visiting locations during tourist stays is a key matter for territorial planning.

Tourist Destinations and Visiting Locations: In all the case study areas, Coastal Tourism was the most significant economic sector in terms of local employment with an associated strong local 'stickability' of economic benefits. As a result, accommodating tourists and providing for their interests and needs during their stay was therefore a key determinant of patterns of development in coastal areas where most Coastal Tourism related actors were located (see Map 3).

For example, in 2017 Croatia offered over 1 million tourist bed spaces, the Pomorskie Voivodship in the Gulf of Gdańsk had 1,629 tourist accommodation establishments and even in the small Municipality of Piran in Slovenia more than 5000 bed spaces were available in private houses, camping grounds, hostels, hotels, holiday/health resorts etc. Beyond this, tourist activities supported many food and drink establishments and influenced the scale and nature of local retailing. For example, 2/5 of the total retail sales in Mecklenburg-Vorpommern in the Pomeranian Bight were associated with travellers/visitors. Similarly, provision of a wider network of visiting locations and associated attractions including natural, historic, cultural and sporting destinations were evident and developing the quality/ sustainability and extending the range and seasonality of such provision is a key concern in European, national, regional and local tourism development strategies.

The scale and seasonality of tourist flows also posed challenges in terms of environmental pressures on natural and cultural assets and on waste management (both municipal waste and sewerage) and water and energy supply. This was of most intense concern in the Croatian Coast and Islands where local populations could increase dramatically in the summer months, but it was also a factor elsewhere and a common matter of territorial planning interest.

What does this mean for Territorial Planning?

Coastal Tourism raises significant territorial planning issues related to the provision of: tourist accommodation and visitor facilities; sustainable transport; energy, water and waste management infrastructure; and environmental protection and enhancement arrangements.

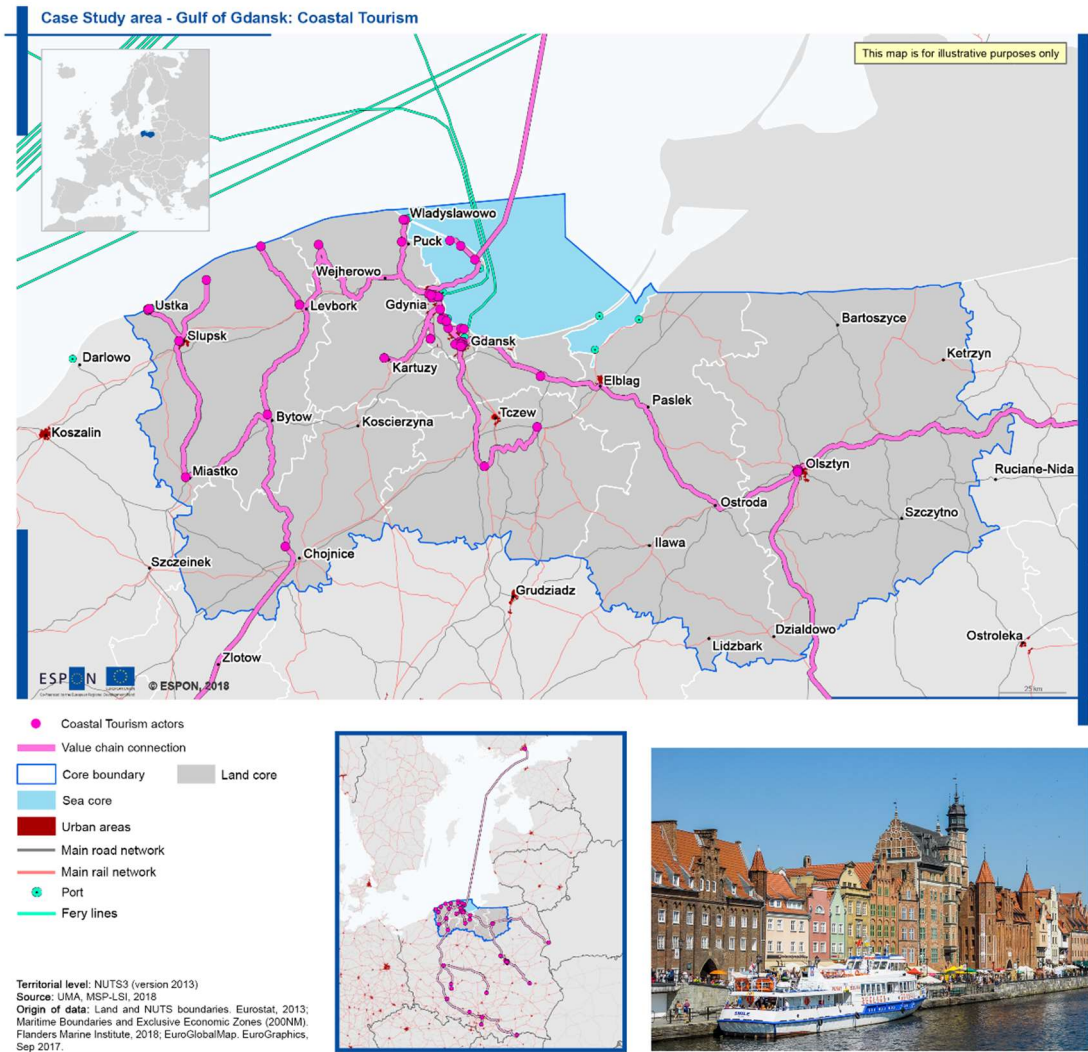
Looking to the future, MSP may play a role in supporting the development of the sector through, for example, facilitating the development of nautical tourism, cruise shipping and zoning for the protection of underwater cultural heritage or by maintaining the experience of a landscape as unobstructed landscape, both from the land to the sea, and vice versa, as a precondition for near to nature tourism. Playing a part in ensuring appropriate environmental protection is also important.

A key conclusion from the Value Chain Analysis is that Coastal Tourism is very much a landward planning concern that requires both local and more strategic terrestrial planning consideration as well as close integration with MSP, as, for instance, done in the Spatial Development Programme of Mecklenburg-Vorpommern.

Closer integration of planning across land and sea may highlight inter-sectoral conflicts and opportunities. For example where locally important tourism development may be affected by nationally significant maritime cargo transport provision, or where new blue economy sectors might help to diversify coastal economies and provide alternative employment. The value of adopting a 'One Space' Territorial Planning approach is highlighted here.

Finally, the Value Chain Analysis also reveals, that territorial planning (both on land and sea) is only part of the wider framework conditions which influence the development of the sector. In this respect its key role may be envisaged as one of support and place based input to sector specific development strategies and related initiatives.

Map 3: Gulf of Gdańsk: Key Coastal Tourism Actors



4.3 Value Chain Analysis: Cruise Shipping

Key Points:

- European coastal regions often struggle to capture many economic benefits generated by cruise ship arrivals.
- The range, quality and accessibility of visiting locations are important factors affecting cruise liner's decision to include a destination in their schedule. Specialist cruise terminals and associated facilities and continuous investment in these is increasingly expected by the industry and is important in maintaining a destinations' competitiveness.
- There are growing concerns in cruise shipping destinations concerning the potential adverse impact the number of cruise passengers can have on the experience of longer staying shore based visitors, the quality of life of local residents and the quality of the local environment.
- MSP may play a role in supporting the sustainable development of the sector through, for example, enabling development of cruise berths in a way that protects other economic, social and environmental interests.
- Although the sector may bring some local economic benefits, their local 'stickability' may be relatively low and any potential economic gains may be offset by other economic, social and environmental costs.

Cruise shipping was identified as a focal sector for Value Chain Analysis in the Croatian Coast and Islands and the Gulf of Gdańsk case studies.

Cruise Shipping and Europe's Blue Economy

Cruise shipping is a growth sector globally and new ports and terminals are in demand. In 2014, the European Strategy *More Growth and Jobs in Coastal and Maritime Tourism* highlighted that in 2012 cruise tourism alone generated a direct turnover of € 15.5 billion and employed 330,000 people (see Map 4). However, it also acknowledged that European coastal regions often struggle to capture the economic benefits generated by cruise ship arrivals or respond to pressures to invest in associated port infrastructures and to preserve the local environment.

Subsequent dialogue between cruise operators, ports and coastal tourism stakeholders at Pan-European level, specifically in relation to the Baltic and Mediterranean regions, have confirmed both the potential for growth in the sector and associated challenges for receiving areas. Conclusions, so far, include a recognition of the need to: involve all the tourism chain in the benefits and deliveries for cruise tourists and a need to preserve the authenticity and heritage of visiting destinations. This should ensure the economic, social and environmental sustainability of cruise visits including the appropriate management of noise levels, waste, water, air quality and energy efficiency at moorings and other locations. From this, it is evident that the future operation and further development of cruise shipping in Europe presents significant opportunities and challenges.

Map 4: Cruise Tourism at European Ports 2016

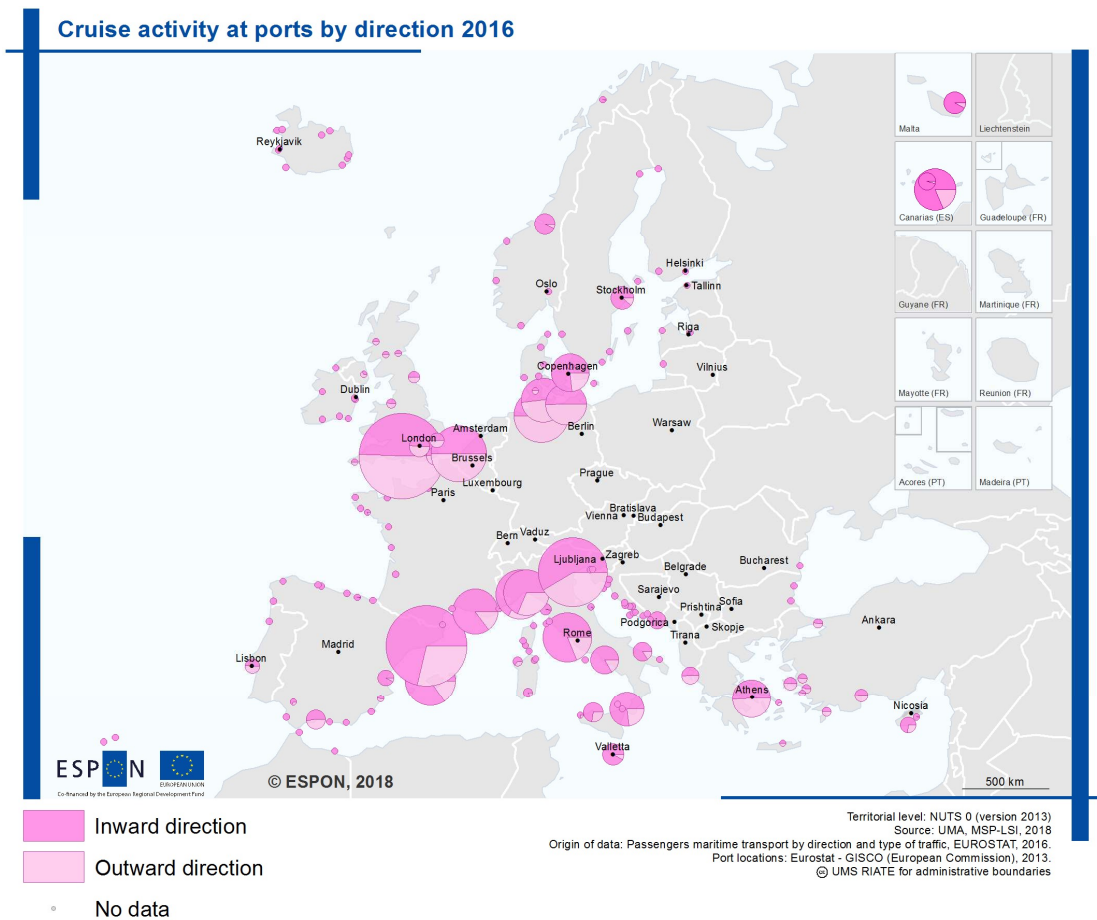


Figure 6: The Cruise Tourism Value Chain



The Cruise Tourism Value Chain (see Figure 7) begins and ends with the **passengers start and end locations** and involves **terminal/port/marina operation services** at starting and ending terminals and at different stops on route. At these stops various **visiting destinations** may be included in cruise schedules. At points throughout the journey **land transport** will be required. Also highlighted is the connection to the shipbuilding value chain.

Following the Value Chain - what are the main impacts on land of Cruise Shipping?

Passengers start and end locations: In terms of passenger start and end locations, the case study analysis revealed the very different patterns of cruise shipping in Croatia and the Gulf of Gdańsk. Cruise tourism in Croatia is part of worldwide and transatlantic cruise itineraries, international routes covering the Mediterranean and Adriatic Seas (with important connections to Italy/Venice and Montenegro) and national routes covering all or parts of the Croatian coast (see Map 5). In the Gulf of Gdańsk, most activity is associated with cruise routes around the Baltic Sea, but the country is also included in routes that encompass the Norwegian Sea and the UK (see Map 6). In both cases, passengers originate from a wide range of countries. In Poland for example Italy, Germany, Switzerland and the United States are the most significant. The wide geographic reach of cruise ship activity is notable, not least in considering the distribution of economic benefits and the local 'stickability' of these.

Terminal/port/marina operation services: In Croatia the main harbours involved in Cruise Shipping are the Ports of Zadar, Šibenik; Split; Dubrovnik; Rijeka and Pula. The largest numbers of arrivals are at Dubrovnik, Split and Zadar which received 356, 147 and 89 cruise ships respectively in 2018. It should be noted that cruise shipping shares much of the same infrastructure as Maritime Cargo and Marine Passenger Transport, yet represents only a small proportion of port activity. For example, out of a total of 338,603 ships that arrived in Croatia in 2017, only 1,511 arrivals were cruise ships. In the Gulf of Gdańsk the ports of Gdynia and Gdańsk are visited by cruise routes. With its new state of the art terminal facilities, Gdynia receives the most cruise passengers, totalling 81,257 in 2016. The Port of Gdańsk welcomed 10,559 passengers in the same year, but this is anticipated to increase following planned upgrading of its cruise terminal infrastructure.

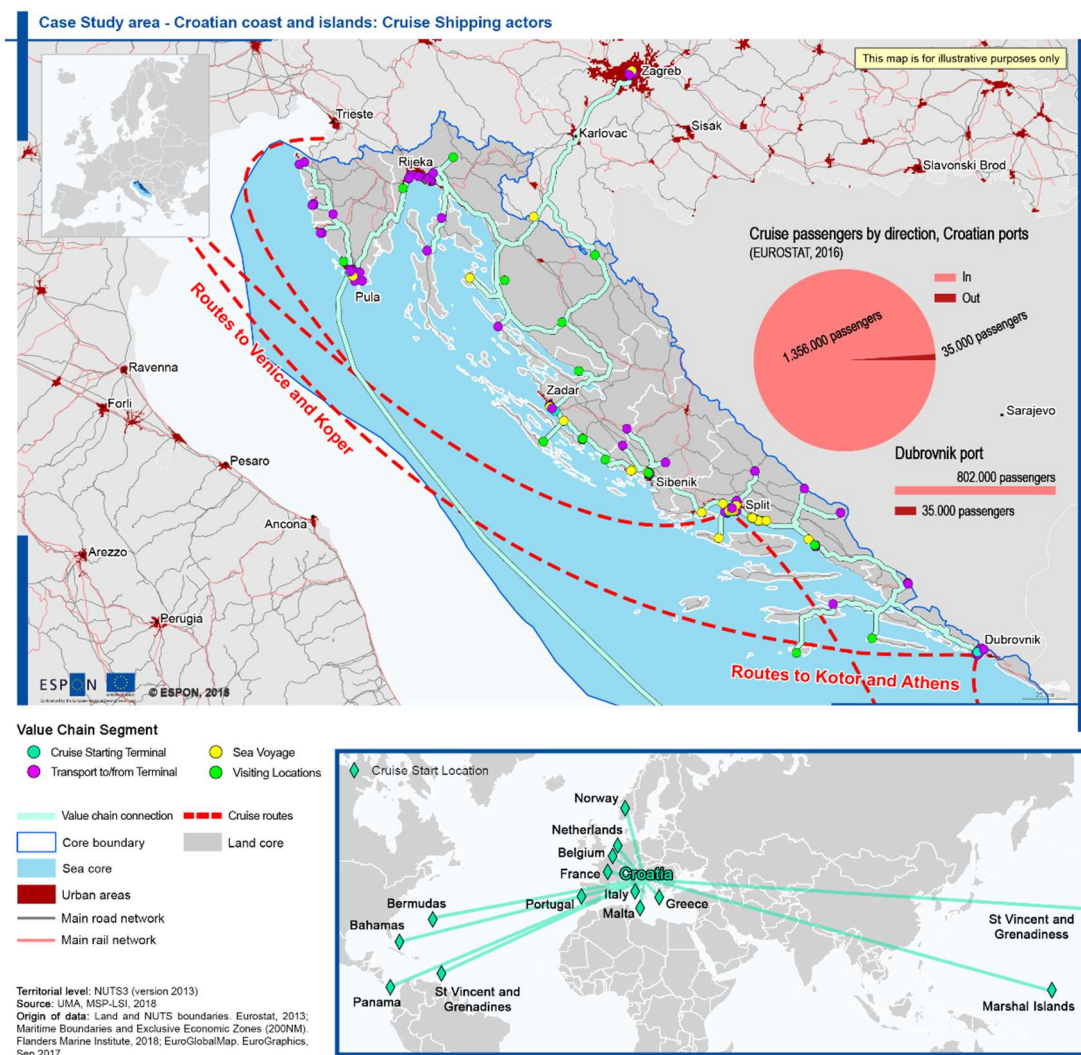
Upon arrival cruise ships need to make use of the full range of services of sea ports. However, in addition, specialist cruise terminals and associated facilities are often required and continuous investment in these is increasingly expected by the industry and is important in maintaining cruise destinations competitiveness. Such investment relates to passenger reception/customs facilities and state of the art berth facilities including waste handling and electricity supply to address air quality, noise and other pollution issues associated with the sector. Efficient connection to wider road and rail infrastructure is also of concern.

Visiting destinations and locations: The majority of cruise ship tourists tend to arrive at their visiting destinations towards 8am and spend between 7 to 12 hours on-shore before returning to their ships in the evening and continuing their journey. While on-shore, passengers engage in independent sightseeing, or in organised visits to other locations, which can include local tours or short excursions to historic or natural sights in the area. Indeed the range and quality of visiting locations, visitor amenities and their accessibility is one of the most important factors affecting a cruise liner's decision to include a destination in their schedule.

In Croatia a wide range of visiting locations are evident but more than 70% of cruise tourism is focussed on the City of Dubrovnik, which is a World Heritage Site. Here there are concerns that the daily number of visitors is well beyond the city's carrying capacity and in line with UNESCO recommendations, local authorities have begun limiting cruise visitor numbers. Another factor influencing this decision, and of developing concern in other locations, is the potential for the adverse impacts experienced by longer staying (and economically more significant) shore based visitors and the quality of life of local residents. At the same time it is acknowledged that in contrast to Coastal Tourism more generally, in Croatia Cruise Shipping tends to be an all year round activity. In the Gulf of Gdańsk, cruise passengers also visit a wide range of locations, but the city of Gdańsk is the favoured option, including for those passengers that arrive in the Port of Gdynia. At present concerns about adverse social and economic impacts associated with the sector do not appear to be prominent here and further growth of the industry is being encouraged.

This analysis helps to reveal the spatial impacts of cruise shipping at visitor destinations and their spread, which includes the wider network of visiting locations beyond the terminal areas. Statistics also help to reveal the relative economic and social importance of the sector in these areas. In terms of direct employment, in Croatia, it is estimated that the sector generated 3,988 jobs in 2017 and resulted in an estimated 60 million euros of local spend generated by cruise passengers' onshore activities. In the same year, in Poland, it is estimated that the cruise industry generated 5,059 jobs, including crew and administrative staff directly employed by cruise lines as well as jobs in the transport and utilities and hospitality industries offering services to cruise ships. However, in both instances, associated employment represented less than 2% of total EU employment in the sector.

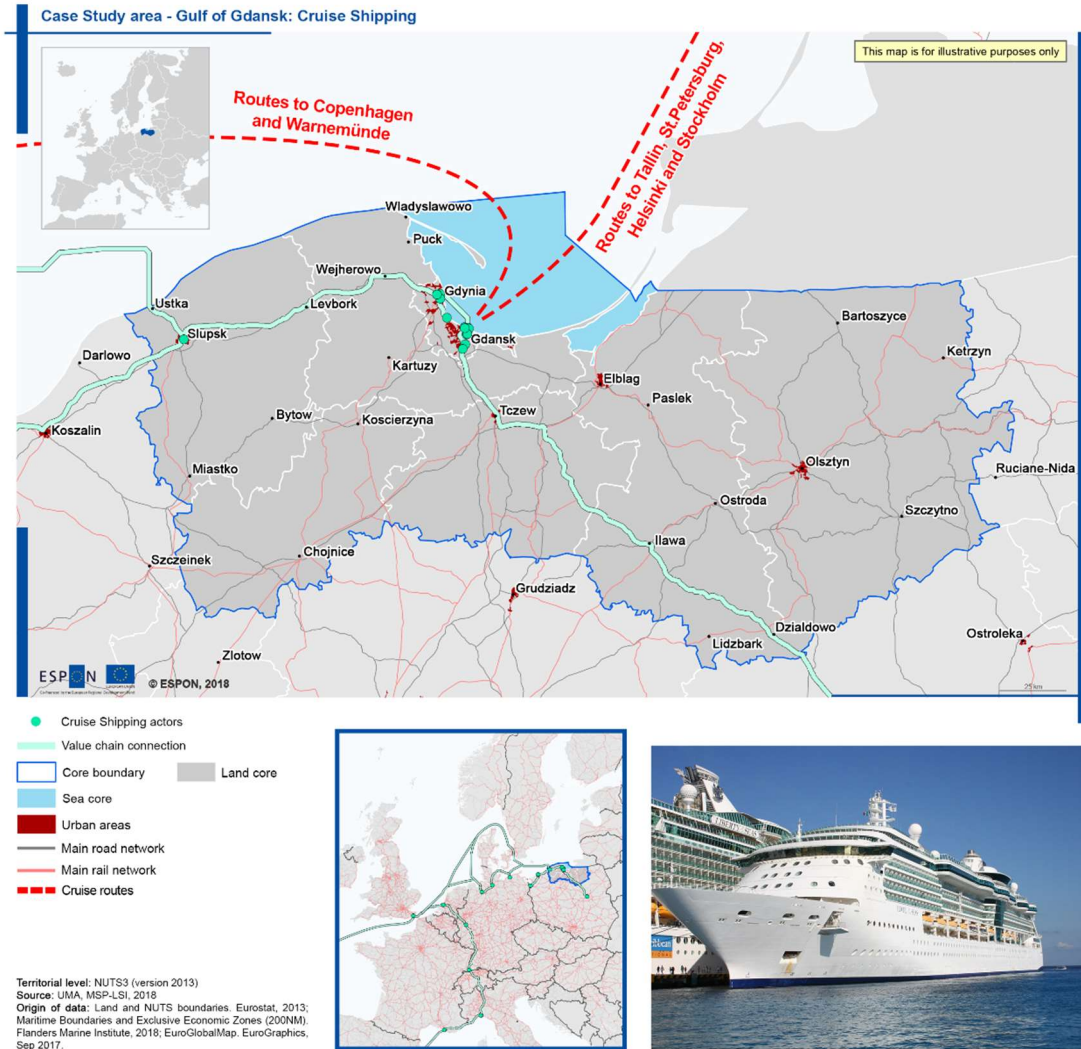
Map 5: Croatian coast and islands: Cruise Shipping



Land transport: The main cruise shipping activities in both Croatia and the Gulf of Gdańsk focusses on stop-over destinations within cruise routes rather than as the main start or end point of a cruise. As such, the main land transport considerations relate to transport of passengers to local visiting locations during their stay. Hence, organised transport provision for passengers can include licensed taxi services offering set prices to visiting locations or pre-booked coaches using local tour operators offering shore excursions to cruise passengers at an additional fee. From this,

it can be envisaged that the main impacts on land will be the need for local parking provision close to cruise terminals (and at visiting locations) and good access to the wider highway network.

Map 6: Gulf of Gdańsk Cruise Shipping



What does this mean for Territorial Planning?

Cruise Shipping raises a range of territorial planning issues related to the provision of: cruise terminal facilities, including suitable berths and associated waste handling / electricity supply facilities; passenger reception/custom facilities; local parking provision; access to landward transportation networks; a local network of quality visitor locations and amenities; and environmental protection and enhancement arrangements.

Looking to the future, MSP may play a role in supporting the sustainable development of the sector through, for example, enabling development of cruise berths in a way that protects other economic, social and environmental interests and in facilitating nautical and underwater cultural heritage provision which may be potential visiting locations in cruise passenger schedules.

Similarly, the Value Chain Analysis reveals that Cruise Shipping is a matter of potentially significant local terrestrial planning interest in terms of assisting in the development of associated

landward infrastructure in port areas and providing good access to a local network of quality visiting locations and visitor amenities.

However, the case studies also highlighted that although the sector may bring some local economic benefits, their local 'stickability' may be relatively low and potential economic gains may be offset by other economic, social and environmental challenges. In this respect adopting a 'One Space' Territorial Planning approach may play a part in ensuring the development of cruise shipping is consistent with local carrying capacity of marine and inland areas.

Finally, the Value Chain Analysis also reveals that territorial planning (both on land and sea) is only part of the wider framework conditions which influence the development of the sector. In this respect, MSPs' key role may be envisaged as one of support and place based input to sector specific development strategies and related initiatives.

4.4 Value Chain Analysis Maritime Cargo Transport

Key Points:

- Rotterdam is regarded as the 'gateway' to Europe, and serves a hinterland with hundreds of millions of inhabitants through its links to Asia, South America, South Africa and other European countries (including Russia).
- Ports in Gdynia and Gdańsk are among the largest logistics centres in the Baltic Sea region and act as important links in the transport chain connecting with countries in Southern Europe, especially the Adriatic and Black Sea regions.
- Fundamental to the successful operation of all ports is their efficient connection to inland logistic networks including both transport (road, rail and inland water) and warehousing facilities at transshipment points.
- Climate change and its long-term territorial implications will probably challenge established logistic networks in the future and require policy action concerning freight transport.
- MSP may play a role in supporting the sustainable development of the sector through enabling appropriate development of port infrastructure.
- Maritime cargo transport is of strategic significance for Europe's regions, both coastal and inland ones. The main benefits associated with its development may lie far beyond coastal communities, where negative impacts may be felt, and conflicts with other local development agendas may be evident.

Maritime Cargo Transport was selected as a focal sector for Value Chain Analysis in the Netherlands and Gulf of Gdańsk case studies.

Maritime Cargo Transport and Europe's Blue Economy

Maritime cargo transport is perhaps the sector that most obviously requires LSI consideration. It is essential to the European economy with 74 % by volume and 50% by value of goods entering or leaving Europe doing so by sea. European ports (See Map 7) provide vital gateways, linking its transport corridors both seaward to the rest of the world and inland within the internal market, and linking peripheral and island areas with the mainland of Europe. The European Commission envisages maritime cargo transport as a land/sea continuum including both sea and coastal freight and inland freight water transport as well as associated service industries. In 2016, around 235 000 persons were directly employed in the sector and the GVA generated amounted to just over 27 billion EUR (EC, 2018a). Not only does maritime transport play a critical role in directly and indirectly supporting Europe's economic and social wellbeing, it has an important part to play in its transition to a low carbon economy. Maritime transport is recognized as the most energy efficient way of moving large quantities of goods, although considerable environmental improvements are still being pursued in the sector. Both deep sea and short sea shipping are seen as critical components of the development of a low carbon transport system. To this end the EU is encouraging the integration of its Motorways of the Sea and TENT-T initiatives to boost the creation of a network of sustainable short-sea routes, maritime corridors, infrastructure development in ports, and sea-based transport services integrated into logistics chains, and inland multimodal transport corridors featuring modern trans-shipment facilities and advanced technologies (EC, 2016) (See Map 9).

Map 7: Container Shipping at European Ports 2016

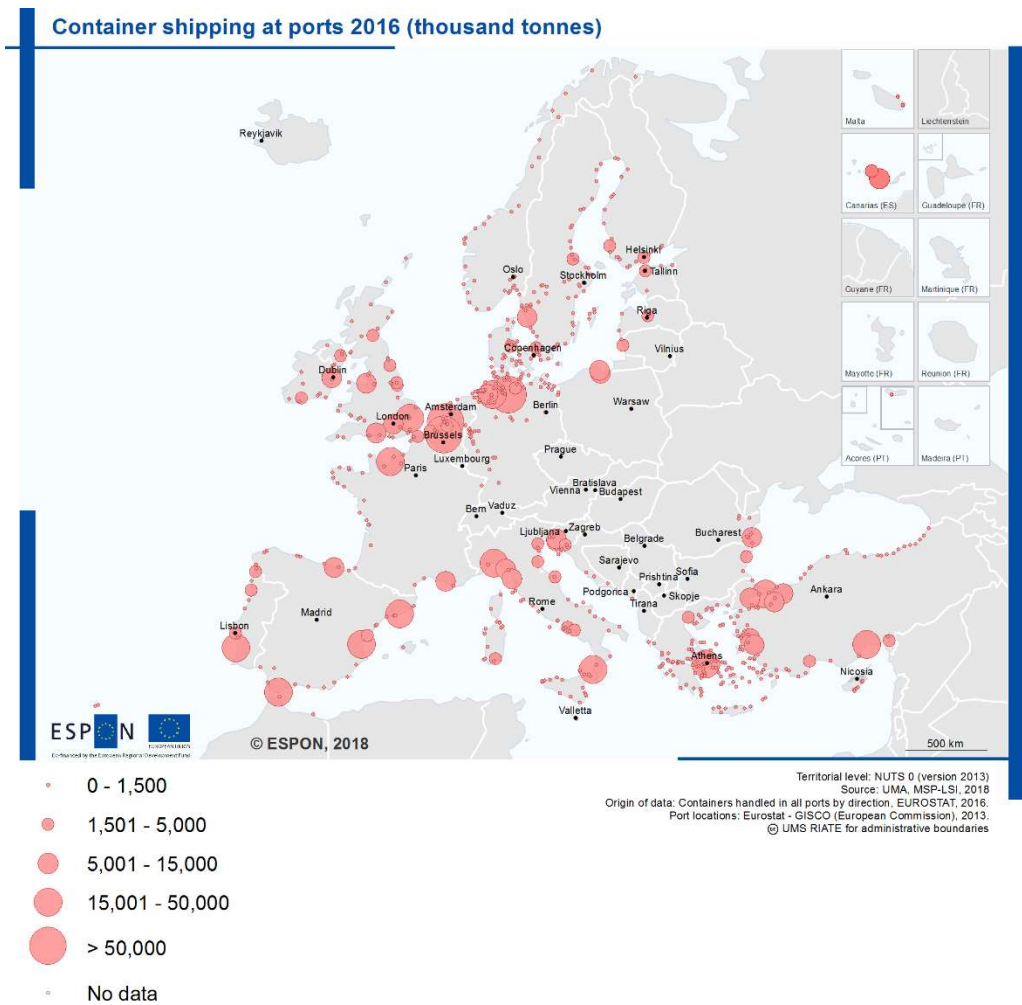
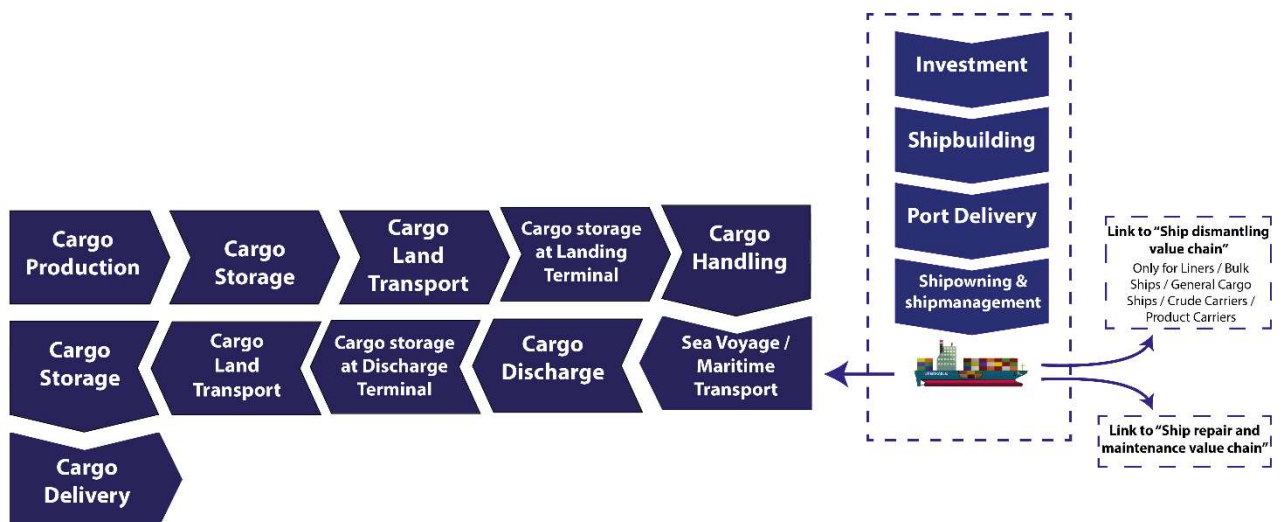


Figure 7: The Maritime Cargo Transport Value Chain



The Maritime Cargo Value Chain (see Figure 8) begins and ends with points of **Cargo Production and Cargo Delivery**. On either side of its sea voyage it will pass through **Sea Terminal Cargo Storage, Handling and Discharge** facilities. Along the journey there will also be various points where **Cargo Land Transport and Cargo Storage** of a temporary nature will be required for example at inland warehousing / transshipment points.

Following the Value Chain - what are the main impacts on land of Maritime Cargo Transport?

Cargo Production and Cargo Delivery: The case studies reveal the international reach and associated strategic importance of the Maritime Cargo Transport sector. It also reveals the extensive spread of its physical footprint and its economic and social benefits.

Since 2010, the Netherlands has handled the largest volumes of seaborne freight in Europe (both incoming and outgoing), amounting to 589 million tonnes or 15.2% of the EU total in 2016. The largest port in the Netherlands, and in Europe, is Rotterdam, which together with Amsterdam, Moerdijk, and Zeelan and Groningen Seaports account for 48% of the market share in the Hamburg- Le Havre area. An important flow of goods for the ports is the transshipment of containers. In this, and other maritime cargo areas, Rotterdam is regarded as the 'gateway' to Europe, and serves a hinterland with hundreds of millions of inhabitants through its links to Asia (including Vietnam, Taiwan, India, Singapore and Malaysia) Brazil and South Africa and other European countries (including Russia) (see Map 8).

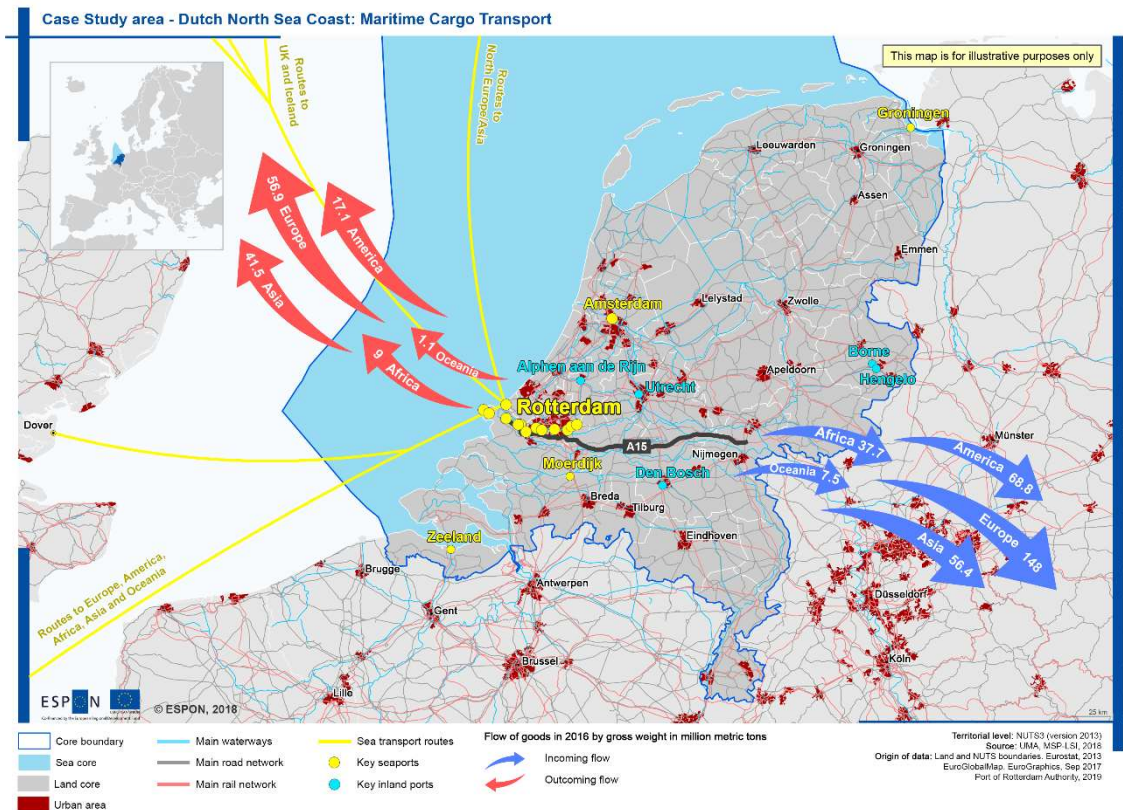
Maritime Cargo Transport in the Pomorskie Voivodeship in the Gulf of Gdańsk is also of strategic significance. It has been developing rapidly and the region is becoming one of the most important logistics centres in Central and Eastern Europe. Ports in Gdynia and Gdańsk are among the largest in the Baltic Sea region serving almost all types of cargo and ships. Their geographical as well as market location allows them to serve as centres of distribution and logistics across the Baltic Sea region and act as important links in the transport chain connecting with countries in Southern Europe, especially in the Adriatic and Black Sea regions.

Sea Terminal Cargo Storage, Handling and Discharge: Facilities for handling all types of vessel and merchandise, from dry and liquid bulk to containers are available at Dutch seaports. For example, developments at the Port of Rotterdam means that its extended port estate (which now covers over 12,700 hectares includes 7,900 hectares of land based infrastructure) is capable of handling the largest container ships in the world, with associated cargo storage, handling and discharge facilities enabling efficient transshipment by sea to other ports, or via all forms of inland transport. It is also noted that the Port of Rotterdam includes an industrial complex. This forms part of the wider development of the Rotterdam-Moerdijk industrial cluster of port related industries.

The Port of Gdańsk also has an extensive port estate which includes a modern deep container terminal which is the second largest transshipment port in the Baltic in terms of container reloading. Meanwhile the Port of Gdynia similarly offers specialised facilities for containerised loads and is equipped with modern reloading devices and terminals for bulk and grouped goods.

All European seaports operate in a highly competitive global logistics market. To maintain their competitive position such ports need to strengthen their capacities in different fields of activities, and continually modernise their infrastructure. Key initiatives in the Port of Rotterdam at present include decarbonisation of port activities and its Container Exchange Project which aims to enable better links between container companies and reduce costs. This includes among other things new infrastructure and IT systems. While demand for logistics and transport services is projected to grow in the Pomorskie region, it is recognised that the Ports of Gdańsk and Gdynia are undeveloped at present due to both dated and insufficient infrastructure. Strategy documents for these ports therefore envisage considerable future investment in developing their overall operating capacity.

Map 8: Dutch North Sea Coast: Maritime Cargo Transport



Cargo Land Transport and Inland Cargo Storage: Fundamental to the successful operation of all ports is their efficient connection to inland logistic networks including both transport and warehousing facilities at transshipment points.

In the Netherlands, inland water transport is of major significance. For example, around 50% of Rotterdam's incoming and outgoing cargo to and from destinations in Europe involves inland shipping. This includes the main Rhine corridor, and also, the wider network of Dutch waterways, with 35 municipalities in the Netherlands offering port locations where at least 10,000 TEU of container cargo was transhipped in 2014. Regarding rail connections, the Port of Rotterdam has more than 250 international rail services to and from the port. Road transport is also important, particularly for goods destined for the Dutch market, and billions of Euros have been invested in the upkeep and improvements to the port's national and European motorway connections. An interesting challenge to this logistics network occurred in the summer of 2018 where prolonged drought brought inland shipping on the Rhine to a halt for nearly a month. With concerns about global warming in mind, there have been discussions about the possible implications of similar events in future for transport and logistics associated with maritime cargo transport in the Netherlands and beyond.

Much attention has also been given to transport and logistics provision associated with the Ports of Gdynia and Gdańsk, and here rail and road infrastructure in the ports' hinterlands are most significant at the present time. Road transport is particularly important accounting for 60% of freight transport, with much recent investment in the two core TENT-T corridors: The Baltic Adriatic Corridor and the North Sea Baltic Corridor (see Map 9). Looking to the future, plans are being developed to improve the Port of Gdańsk's access to inland waterways. The Gulf of Gdańsk investigations also highlight the importance of warehousing storage capacity at key intersections

along inland transportation routes. For example, recent investments in the Pomorskie region by multinational logistics companies have extended the total storage surface to 400, 000 sq. meters. However this is still regarded as a low figure in comparison to transshipment facilities provided in other Voivodeships in Poland.

What does this mean for Territorial Planning?

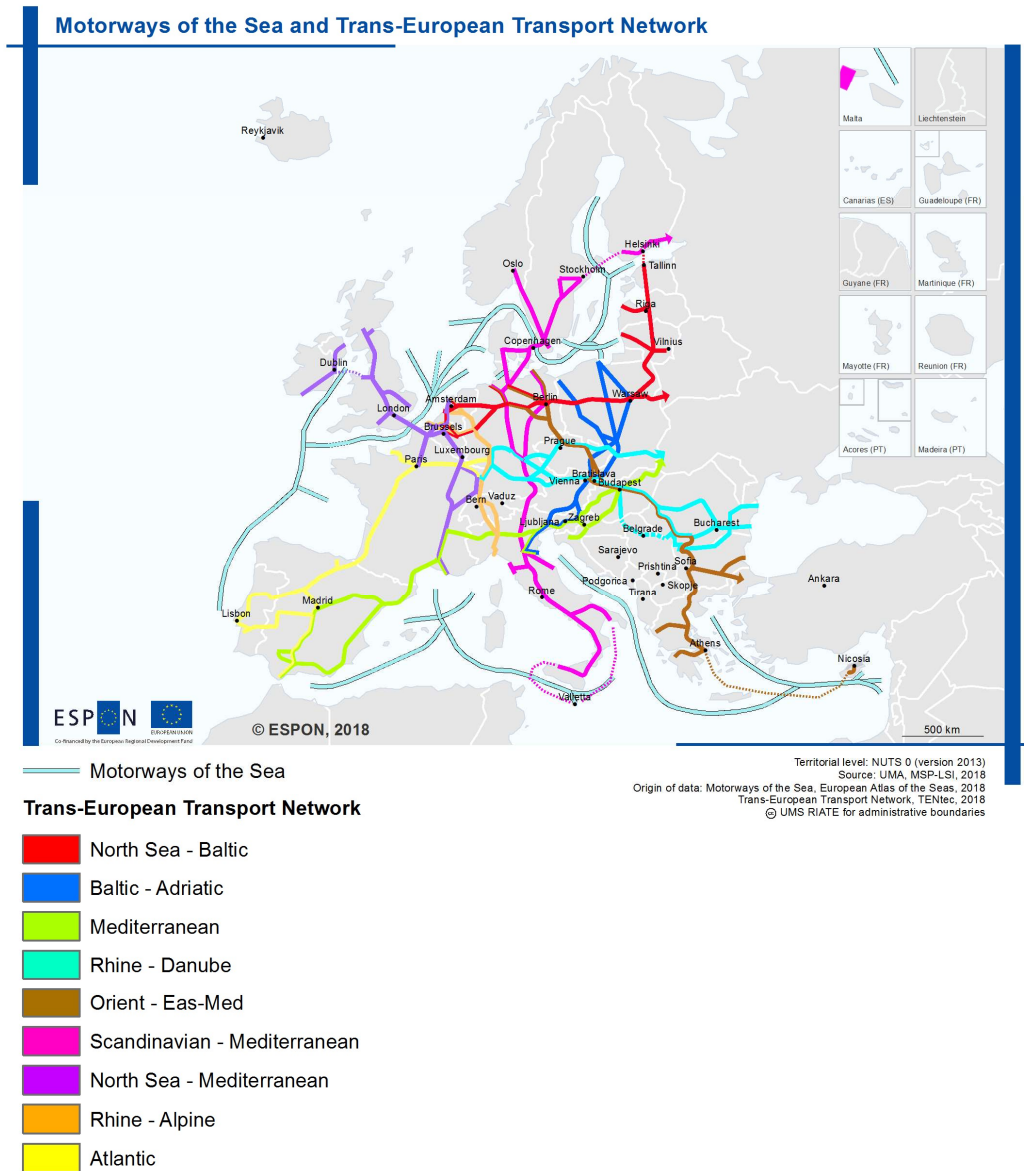
Maritime Cargo Transport raises a range of territorial planning issues related to the provision of competitive port infrastructure including cargo storage, handling and discharge facilities; port related industrial development in or adjacent to ports and their wider hinterlands, road, rail and inland water connections and associated freight infrastructure including warehousing at key transshipment points.

Looking to the future, MSP may play a role in supporting the sustainable development of the sector through reserve space for the future development of ports.

Again adopting a 'One Space' Territorial Planning approach may play a part in ensuring the development of Maritime Cargo Transport is consistent with local as well as national and international agendas.

Finally, the Value Chain Analysis also reveals, that this sector operates in a highly competitive globalised environment where factors well beyond the capacity of territorial planning will be key in determining future patterns of development. However, its role in providing support and place-based input to sector development is nevertheless important.

Map 9: Motorways of the Sea and Trans-European Transport Network



4.5 Value Chain Analysis: Offshore Wind Energy

Key Points:

- Offshore wind energy is the fastest growing Blue Economy sector and is a major contributor to European employment growth accounting for 160,000 jobs - more than the European fishing fleet.
- It is estimated that the North Sea alone could play an important role in decarbonisation of Europe's energy supply offering and providing up to 12% of the EU's electricity by 2030.
- Offshore windfarm development is actively being promoted by Dutch, German and Polish governments as a key strand in their Climate Change/Energy Transition agendas.
- The production of large components and the final aspects of assembly are usually located in close proximity to the coast or ports.
- Offshore Wind Energy is of major strategic importance and while some benefit may be derived by coastal communities the local 'stickability' of economic benefits is relatively low.
- Potential conflicts related to the sector and perceived disbenefits may be felt most by those living close to the coast.

Offshore Wind Energy was selected as a focal sector for Value Chain Analysis in the Netherlands and Pomeranian Bight case studies.

Offshore Wind Energy and Europe's Blue Economy

Offshore wind energy along with other forms of Blue Energy generation (including ocean energy derived from the power of currents, tides and waves and to a lesser extent from thermal and saline gradients in some locations) is emerging as a key element of Europe's Blue Economy with ambitions of contributing to economic growth in coastal regions, as well as inland. Pan-European supply chains associated with Blue Energy are developing as the industry expands involving both innovative SMEs and larger manufacturing companies with relevant capabilities in, for example, shipbuilding, mechanical, electrical and maritime engineering but also environmental impact assessment or health and safety management (European Commission, 2014). To date offshore wind is the fastest growing Blue Economy sector and is now a major contributor to European employment accounting for 160,000 jobs - more than the European fishing fleet (European Commission, 2018a). The EU is a global leader in offshore wind energy with involvement in about 90% of the newly finished projects in the world. It is estimated that the North Sea alone could play an important role in the decarbonisation of Europe's energy supply, offering the potential to provide up to 12% of the EU's electricity by 2030. There is an increasing synergy between climate change, energy and maritime policies as European nations seek to transform their electricity production.

Map 10: EU Blue Energy Typologies

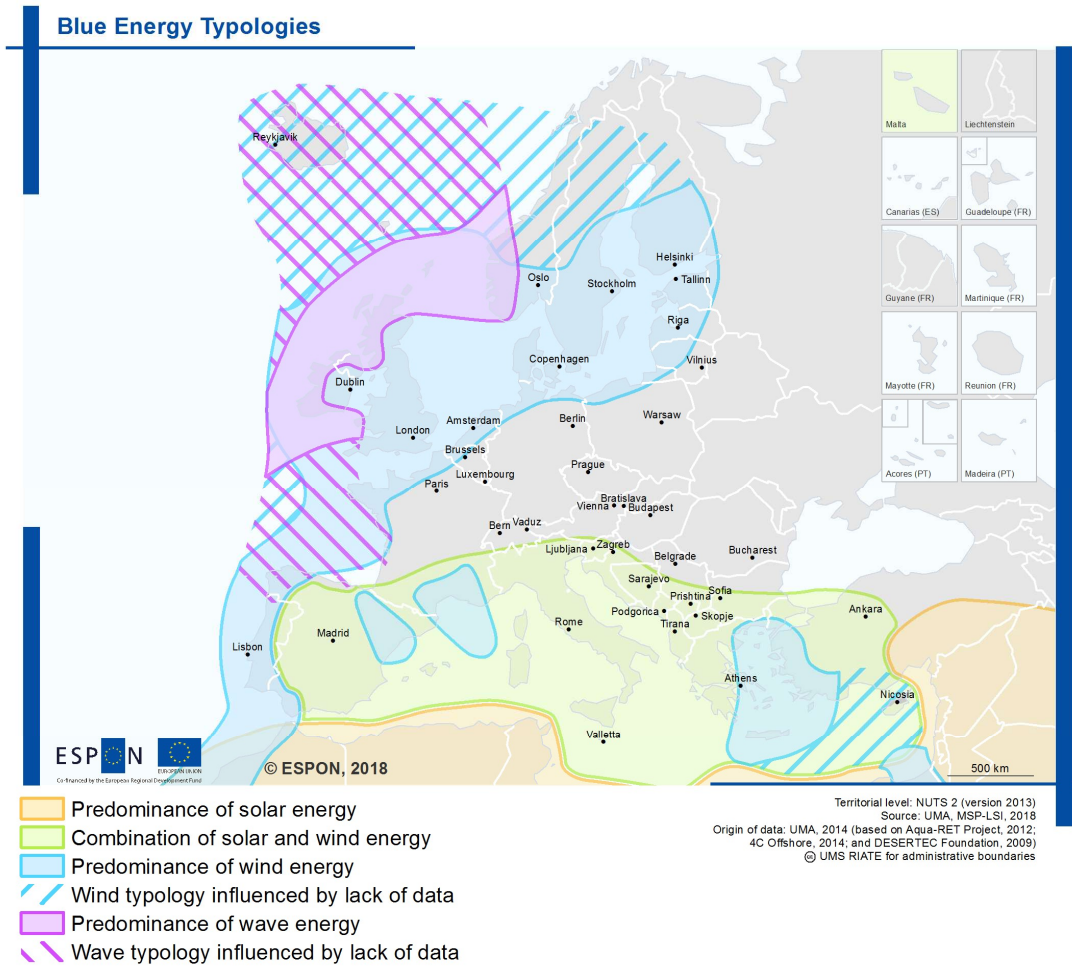
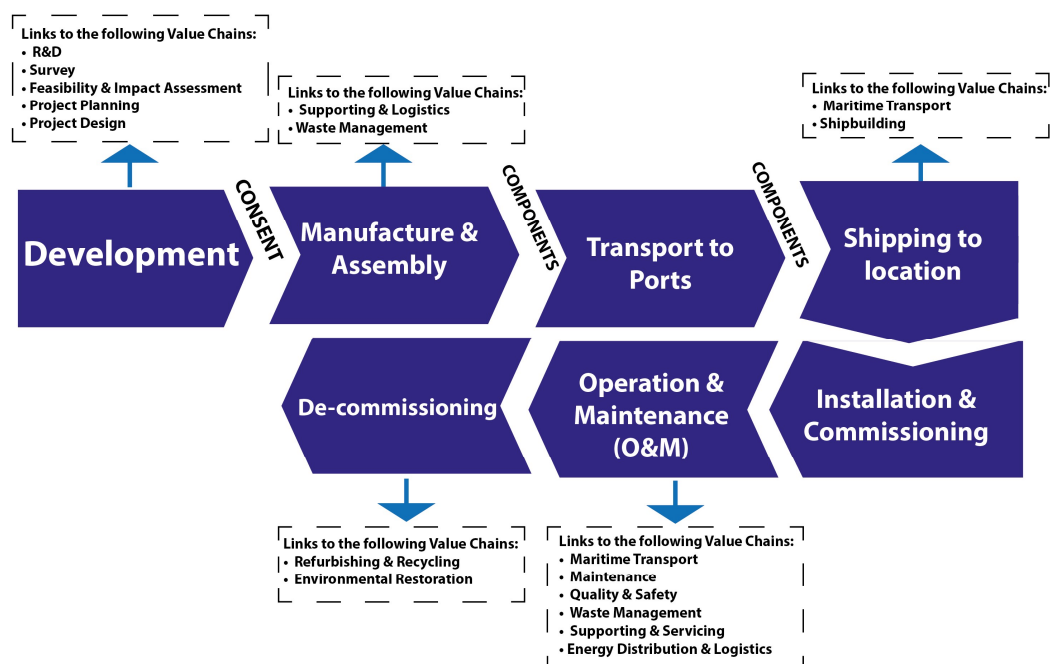


Figure 8: The Offshore Wind Energy Value Chain



The Offshore Wind Energy Value Chain (see Figure 9) begins with the **Development** of wind farm proposals that leads to the **Manufacture and Assembly** of components, which then require **Transport/Shipping** to their seaward locations for **Installation and Commissioning**. Subsequent **Operation and Maintenance** activities will be ongoing during the lifetime of the scheme before final **De-commissioning** takes place. The value chain also highlights the connectivity to related value chains including shipbuilding and maritime transport.

Following the Value Chain - what are the main impacts on land of Offshore Wind Energy Development?

Development: Of all the Blue Economy sectors considered in this study, Offshore Wind Energy was the one that appeared most directly driven/influenced by national government agendas and policy.

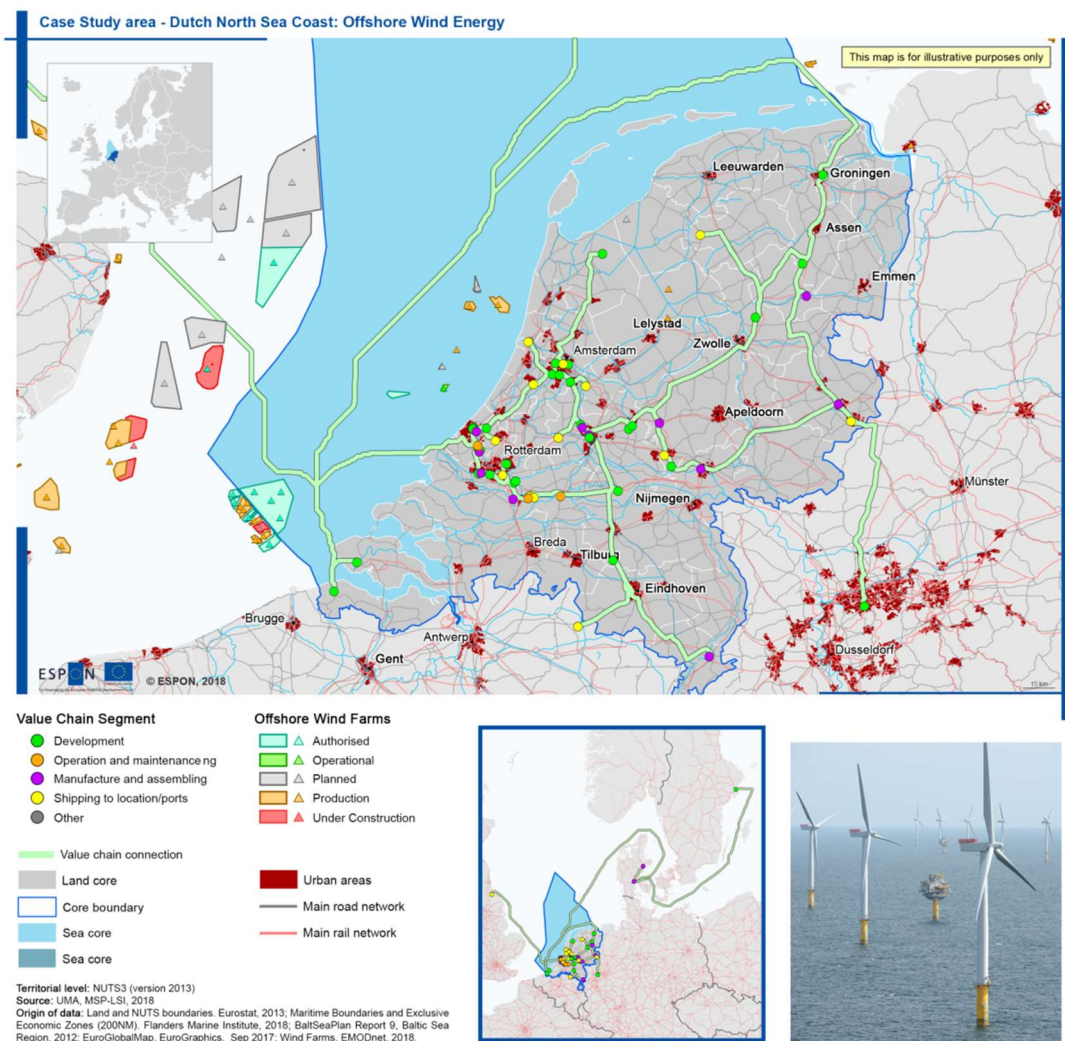
For example, the offshore wind energy sector in the Netherlands is experiencing significant growth and this is closely connected to the government's policies regarding the expansion of renewable energy sources. Therefore in terms of the development of schemes in the Dutch North Sea, central government departments involved in delivering national energy transition policies (in line with commitments under the United Nations Framework Convention on Climate Change and EU agreements) can be considered as the initiators of development in the value chain. With the aim of reducing greenhouse output by 40% by 2030, government proposals envisage 48GW of installed capacity in the North Sea by 2030 and between 70-150GW by 2040. Subsequently a range of government departments support the development of schemes, not least MSP authorities in allocating space in marine plans for offshore wind activities. In terms of design and development, a number of Dutch companies or multi national companies with a base in the Netherlands have been involved in developing schemes in the North Sea (See Map 11).

This pattern is similar in the Pomeranian Bight, although offshore wind farm development is at an earlier stage in its progress here with only three schemes currently installed, delivering a connected capacity of 1018 MW. However in both Germany (at Federal and Länder levels) and in Poland government policies are promoting growth in offshore wind energy capacity in line with

energy transition policies and this is reflected in the allocation of areas for such development in existing and emerging marine plans. Germany has a well developed research base focussing on offshore wind energy development including both universities and private companies that are involved in design and project development. Polish institutions and companies are less well represented in this area.

Manufacture and Assembly: The turbine market is dominated by a few large international companies, some of which are active in the Netherlands, Germany and Poland. Although production mainly takes place in Denmark, there are a range of smaller production sites for associated material and components across Northern Europe and it is notable that 75% of the value added in the offshore wind sector comes from medium sized companies. The production of large components and final aspects of assembly are usually located in close proximity to the coast or ports as transport would otherwise generate significant costs. Beyond this, for the supply of specialist materials or smaller components, many companies can be involved which are located well away from coastal areas. For example, in Germany, the Saarland region is a key source of high-quality steel for the foundations of wind energy plants, In addition North Rhine-Westphalia, Bavaria and Baden Wuttemberg have benefitted considerably from the expansion of offshore wind power with 50% of the turnover and 40% of the employees in the industry in Germany coming from these three federal states (See Map 12).

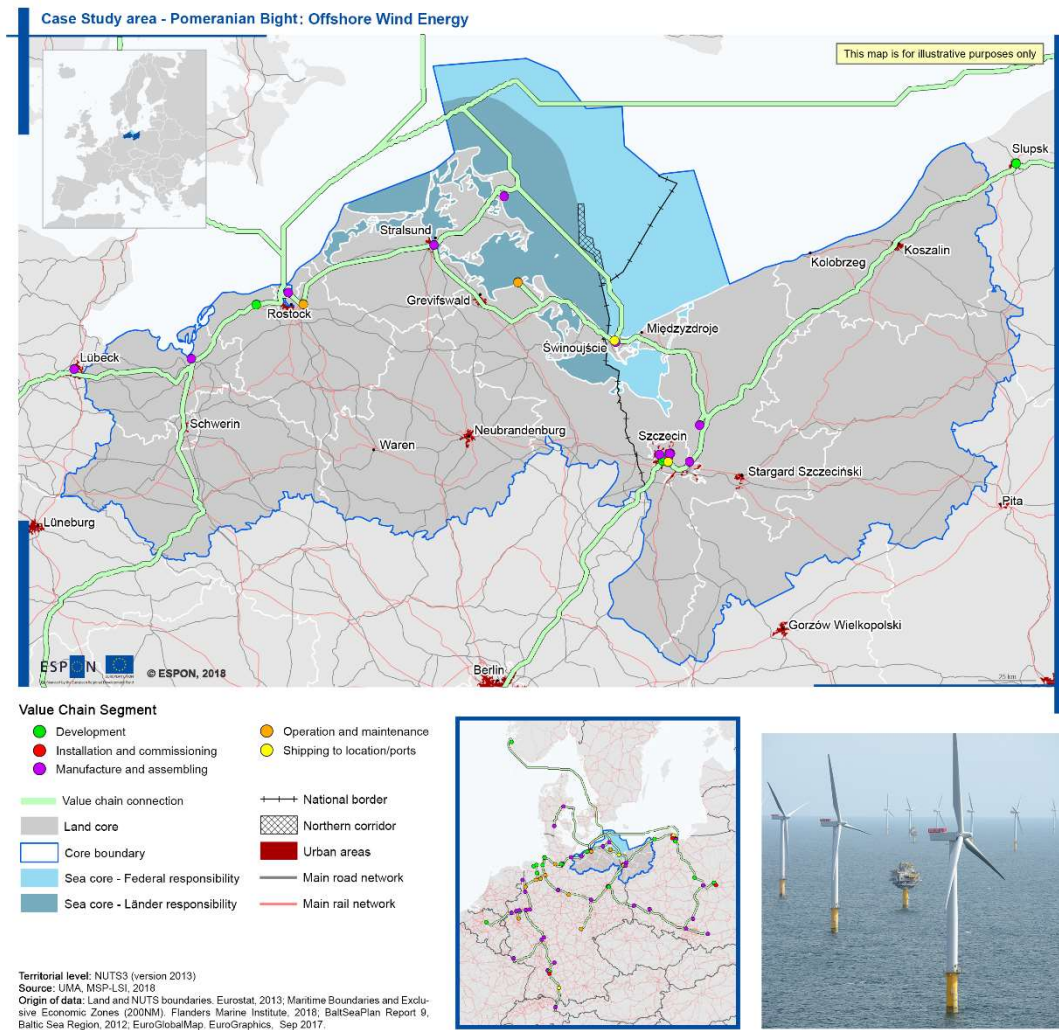
Map 11: Netherlands: Offshore Wind Energy Actors



Transport/Shipping: Various companies will be involved transportation of wind turbine components from their inland production sites to final assembly points close to the coast. The final shipping to installation locations at sea, is however much more of a specialist activity requiring purpose built ships. Polish shipbuilding companies seem well placed to benefit here. They produce several models of vessels dedicated to offshore wind installation that have been successfully deployed in offshore wind projects abroad. The current estimated value of offshore wind contracts to Poland's shipbuilding sector is 150 million euros and the projected value of contracts between 2018 and 2025 may amount to 700 million euro per year. In 2014 the first wind farm installation vessel built in Germany was completed, indicating potential capacity here as well.

Installation and Commissioning: Reflecting their considerable experience in the offshore oil and gas sector Dutch companies occupy a strong position internationally in terms of installation of wind farms, construction of foundations and seabed research. Many Dutch companies have extended their existing activities to the offshore wind sector and they have a high share of the European market in this aspect of work (around 70%) and are involved in the construction of offshore wind farms in the UK, Germany, Denmark as well as the Netherlands. Another critical aspect of work here includes the laying of cable networks, provision of grid connections and substations. For substations, cabling and grid connection there are several active parties in the Netherlands and Germany. An important aspect of consideration here relates to the location of points of connection to the main electricity grid. It is incorrect to assume that these points will occur at coastal locations. Although this may be the case in some instances, a critical factor to consider relates to the capacity of the grid to receive large inputs of power at particular points. Consequently in relation to some of the existing windfarm schemes in the case study areas, connection sites have been identified well inland with associated highpower cabling provision needed up to these points.

Map 12: Pomeranian Bight: Offshore Wind Energy Actors



Operation and Maintenance: Offshore wind maintenance is mainly carried out by turbine manufacturers, but ports also play an important role in this respect with facilities needed in some cases for helicopter operations enabling fast transport. In Germany 'Reaction ports' are identified to serve as departure points for short-term, spontaneous maintenance works, whereas 'operational ports' facilitate planned transport/maintenance activities.

De-commissioning: Decommissioning of windfarms is still at a very early stage but it can be anticipated that European companies specialising in oil and gas platform decommissioning may take a leading role here.

What does this mean for Territorial Planning?

Offshore Wind Energy raises a range of territorial planning issues. These include: the provision of suitable sea space for windfarm development; provision for manufacture and assembly sites close to the coast or in ports (and at manufacturing complexes in other locations); facilitation of grid connection points (and associated high power cabling) and provision for operational space associated with ongoing maintenance. Finally a planning input may be required in final decommissioning or recommissioning offshore wind farms.

Looking to the future, MSP has a particularly important role to play in supporting the development of the sector through space allocation in plans and possibly redirecting activities away from

favoured development locations. The Dutch experience of realigning shipping lanes is an example of what might be needed here.

MSP and wider sea basin strategies are also seen as key mechanisms to realise the renewable energy potential of European seas by facilitating efficient energy connectivity and distribution between nations

For terrestrial planning the main issues to consider relate to coastal or inland grid connections and provision for high power cable networks up to and beyond these points.

However, a key conclusion from the Value Chain Analysis is that Offshore Wind Energy is of major strategic importance for national and international agendas in decarbonising energy supply and responding to climate change challenges. It is also evident that while some local benefits may be derived by coastal communities from offshore wind farm development, operation and maintenance, the local 'stickability' of the economic benefits is often relatively low with the exception of single regions as, for instance, the City of Rostock. Indeed economic, social and environmental benefits can be seen to be spread over a wide area, while some of the potential conflicts (for example with fishing activities and environmental consideration) and perceived disbenefits (for example related to coastal tourism) are currently felt most strongly by those living close to the coast.

This is another example of where adopting a 'One Space' Territorial Planning view, may play a part in ensuring the development of Offshore Wind Energy is consistent with local and national agendas.

4.6 Value Chain Analysis: Mariculture

Key Points

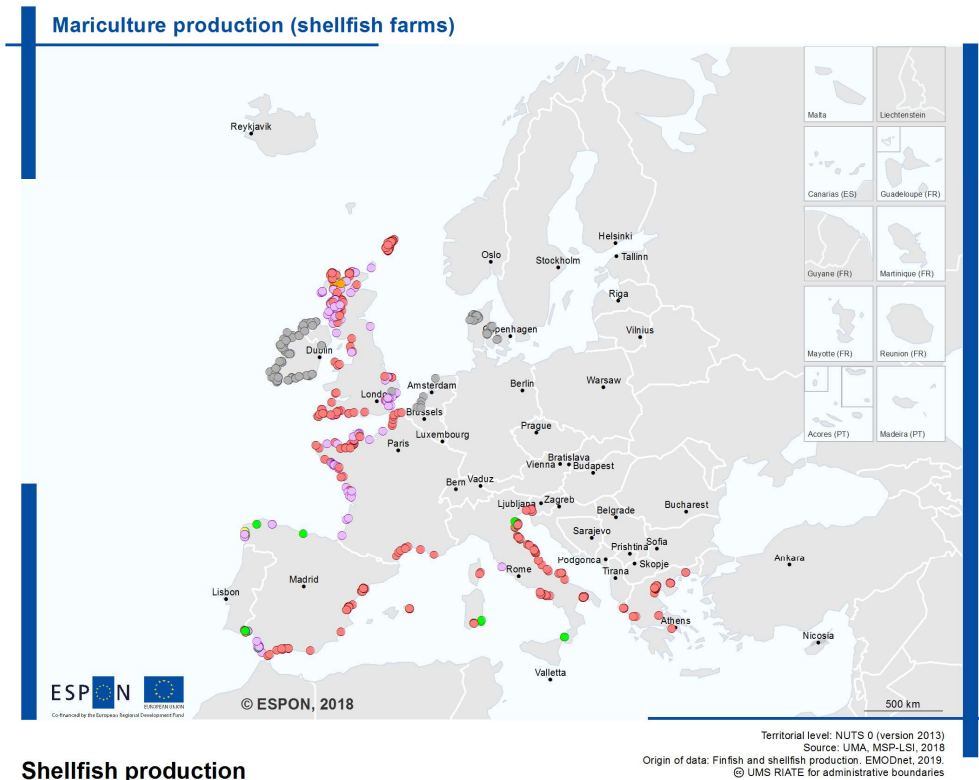
- Mariculture is seen as having the potential to boost growth and jobs in EU coastal and inland areas. Close cooperation with the processing industry can further improve job creation and competitiveness in both sectors.
- Due to the decline in fish catches, mariculture is becoming increasingly important for Slovenia and further growth of the sector is supported.
- Landward transportation and the sale of the products tends to be undertaken directly by the producer companies themselves. This highlights that although the sector is very small, much of the economic benefit in Slovenia flows back to the local area and levels of economic 'stickability' are high.
- Mariculture has the potential to significantly affect the environment if not properly designed and monitored, and similarly to be in conflict with or be adversely affected by activities associated with other marine and landward activities.

Mariculture was selected as a focal sector for Value Chain Analysis in the Slovenian case study.

Mariculture and Europe's Blue Economy

Fisheries and aquaculture together with associated processing, wholesale and retail activities employed almost 530,000 people in Europe in 2016 and accounted for 15% of all employment in the EU Blue Economy at that time. 60% of the employment in the sector was associated with landward activities in processing, wholesaling and retailing (EC, 2018a). In fisheries, future employment will depend on effective conservation of the stocks on which the industry depends. There is a however a trend towards better economic performance, which is correlated to more sustainable fishing and has been reinforced and accelerated under the new Common Fisheries Policy. In the EU, mariculture is responsible for about 20% of the EU's fish production and directly employs some 80 000 people. It has been identified as a key Blue Economy growth sector and the objective is to have a competitive EU industry which can continue to grow sustainably to meet the growing demand for seafood (EC, 2017a). Mariculture is seen as having the potential to boost growth and jobs in EU coastal and inland areas and it is envisaged that close cooperation with the processing industry can further improve job creation and competitiveness in both sectors.

Map 13: European Shellfish Production, 2019

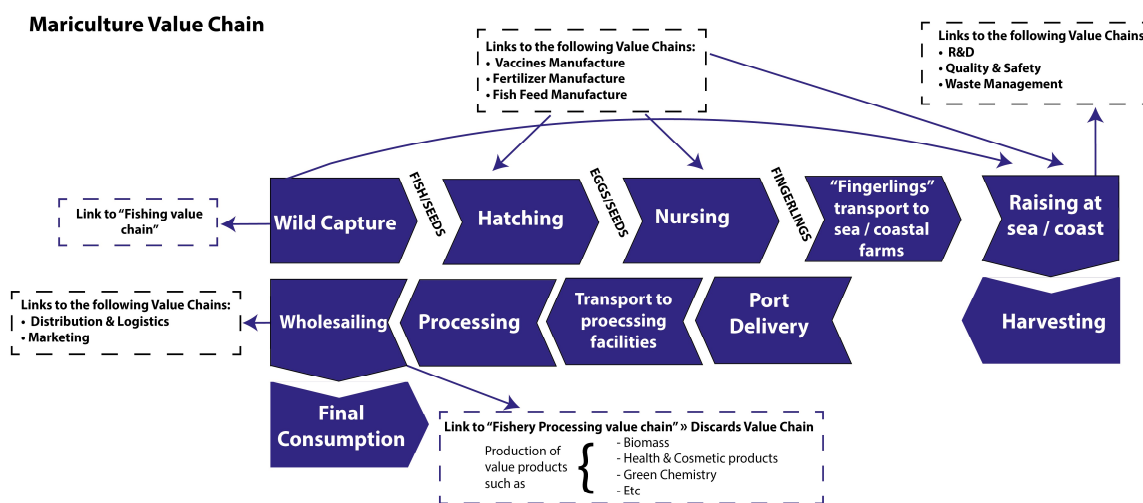


Shellfish production

- Clams
- Cockles
- Mussels
- Oysters
- Scallops
- Other
- Unknown

Absence of data in a particular area does not mean that there are none. They may be not reported yet.

Figure 9: The Mariculture Value Chain



The Mariculture Value Chain (see Figure 10) starts with the **Wild Capture/Hatching/Nursing** of ‘fingerlings’ (young fish) which might include a seaward element but also activity on land. The fingerlings may then be transported for **Raising at sea/coast** fish farms, following **Harvesting/Port Delivery**, stock may then undergo **Processing** and **Wholesaling** involving landward **Transportation** before **Final Consumption**.

Following the Value Chain - what are the main impacts on land of Mariculture?

Wild Capture/Hatching/Nursing/Raising at sea/coast: On the Slovenian coast there are 26 shellfish breeding locations and two locations with fish breeding cages. Mariculture activity is mostly focused on three companies dedicated to the wild harvest/hatching/nursing and raising of shellfish and fish. There are two main shellfish companies and one fish farming company. For shellfish, mainly mussels are bred (*Mytilus galloprovincialis*), and in recent years, in smaller quantities, a special variety of clams (*Venus verrucosa*) Fish farming mainly relates to sea bass, and in smaller amounts two varieties of bream.

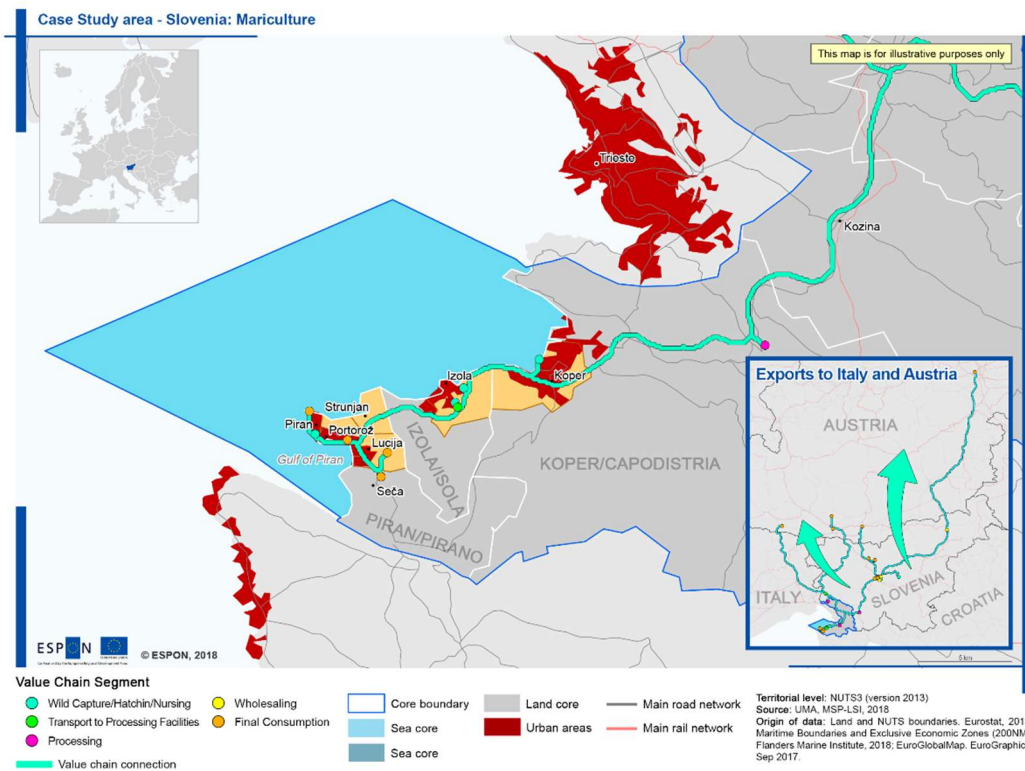
Mariculture activity is mainly carried out in fishing reserves. In the Slovenian sea, two fishing reserves were established for the protection of fishery resources and mariculture: The Portorož fishing reserve and the Strunjan fishing reserve. The Portorož fishing reserve comprises the inner part of the Piran Bay and its salt pans. The Strunjan fishing reserve comprises the sea along the coast of Strunjan Rtič and the inner part of Strunjan Bay (between Pacug and Rtič Strand) with the accompanying lagoon Štuja.

Due to the reduction of fishing areas and, consequently, the significant decline in catches over the past 20 years, mariculture is becoming increasingly important for the country. National authorities estimate that in the Slovenian sea and the coast there are still opportunities to increase and develop mariculture, to which end they have issued terms of reference to research the possibilities. Total mariculture production has shown continuous increase in Slovenia since 2002 and further growth is anticipated. At the present time a few shellfish breeding sites can raise up to 250 tonnes of mussels annually, while the one fish farm breeds 100 tonnes of sea bass. According to national statistics annual revenues from the sector were just under 1million euros in 2017. Despite a pattern of growth a key characteristic of Slovenian mariculture operations is their relatively small size (most are micro enterprises, employing up to 9 persons). In 2012, according to the National Statistical Office, the sector nationally had 39 employees (28 full-time and 11 part-time). More recent employment data for mariculture is not available but it is unlikely that there has been a sizeable growth in the number of people working in the sector in recent times.

Harvesting/Port Delivery Processing/Wholesaling/Landward Transportation: After harvesting/landing, shellfish must be purified before reaching the market and one company has established a special shellfish purifying facility on the coast for this purpose. The fish farm on the other hand tends to sell its produce fresh with minimal processing. Apart from a small local market, most mariculture products are sold on the national market and are distributed by road in refrigerated trucks and vans. Landward transportation and sale of the products tends to be undertaken directly by the producer companies themselves. This highlights that although the sector is very small, much of the economic benefit of the value chain in Slovenia flows back to the local area and levels of economic 'stickability' are high.

Final Consumption The mariculture companies sell their product to supermarkets, restaurants, and hotels located locally and in the capital Ljubjana. The fish farm also has some buyers in Italy and Austria (however not beyond).

Map 14: Slovenia: Mariculture Actors



What does this mean for Territorial Planning?

Mariculture raises a range of territorial planning issues related to the provision of: suitable sea/coastal space for hatching, nursing, and raising of stock including in fish farms; port landing; processing facilities; and transportation infrastructure enabling speedy delivery of produce to final consumers. In addition in coastal areas adjacent to mariculture production sites provision of space for consumption, including specialist retailing and restaurants may be called for.

Looking to the future, MSP clearly has a role to play in facilitating the development of the sector by providing sea space for associated developments. Equally the sector also has landward and transportation space requirements that are important to its operation and require consideration in terrestrial planning.

In both respects it is important to highlight the potential for mariculture to significantly affect the environment if not properly designed and monitored and similarly to be in conflict with or be

adversely affected by activities associated with other marine (such as shipping) and landward activities (such as industrial development). Given these issues and the relatively small scale of the sector in terms of local employment, balancing its development with that of more economically significant sectors raises some interesting planning challenges.

The Slovenian case study does however reveal that there may be high levels of local 'stickability' of the economic benefits associated with the sector, and also local cultural connections that form part of wider coastal tourism attractions that need thoughtful consideration.

Again this investigation reveals the potential value of adopting a 'One Space' Territorial Planning approach. Indeed co-ordinated spatial planning is identified by the European Commission as important to secure the sustainable development and growth of mariculture and this includes joined up approach between land and sea but also at a sea basin scale.

4.7 Value Chain Analysis: Some Reflections

The Value Chain Analysis piloted in the MSP-LSI case studies and summarised above reveals the type of LSI insights that can be obtained from such an approach and how this might inform better planning and management of associated LSIs. Using the different segments of the value chains provides a focused way of structuring information gathering to build a picture of the operation of a sector and its spatial footprint and connections. This also enables an assessment of the relative 'stickability' of economic and other benefits within coastal communities. It is important to note that this is essentially a qualitative form of analysis which involves piecing together information from a range of sources as highlighted in the examples of value chain information sources presented in Annex 1.

5 Conclusions and Recommendations

Taking account of LSI in MSP in line with the 2014 MSP Directive recitals presents significant challenges due to the complex socio-economic, bio-geochemical and governance inter-relationships involved. The MSP-LSI study has explored how LSI considerations can be defined and operationalised for the MSP community with a focus on understanding the main socio-economic impacts on land of key maritime sectors. The MSP-LSI approach is summarised in the accompanying MSP-LSI Guidelines for Good Management of LSI. Some final conclusions and recommendations are set out here.

Recommendation 1: The ‘MSP-LSI Framework for Considering LSI in MSP’ can help to identify the most important LSI of relevance to MSP in different contexts.

The ‘MSP-LSI Framework for Considering LSI in MSP’ (see Figure 3) illustrates that LSI involve the complex interrelationship between socio-economic, biogeochemical and governance factors. Which LSI may be regarded as being of most importance will be highly context specific. However drawing upon a literature/practice review, an initial ‘checklist’ of LSI issues is set out in the framework to help guide LSI reflection. Maritime Transport/ Ports, Warehousing and Water Projects; Coastal Tourism; and Offshore Energy (including marine extraction of oil and gas, offshore wind energy and ocean energy) were most frequently mentioned in the literature/practice review as raising LSI considerations and these are suggested as an initial focus for reflection with regards to the specific local context.

Recommendation 2: The ‘MSP-LSI Method for Investigating LSI in MSP’ can help structure more detailed investigation of LSI issues particularly those associated with maritime sectors and governance considerations.

The ‘MSP-LSI method for investigating LSI in MSP’ has been: developed; piloted in case study investigations at local, regional, national and transnational scales; and refined through this study. It is put forward as one possible approach to investigating LSI where maritime sectors and governance considerations are of particular concern. The method provides a way of stepping into the LSI complexity in a structured, focussed and purposeful way, ultimately enabling recommendations for good management of LSI to be distilled. It enables LSI considerations to be tailored to different contexts and levels of resourcing by providing a structure that can guide in depth research or lighter touch investigations, in the form, for example, of stakeholder workshops.

Recommendation 3: The list of example information sources drawn upon the MSP-LSI study (see Annex 1) can help guide data collection related to LSI involving maritime sectors in MSP.

The MSP-LSI study has revealed that given the inherent complexities involved in LSI, a focussed yet flexible approach to information gathering is important. The LSI issue being considered and the scope of the core area under investigation will determine the availability of relevant statistical data and, in the main, a qualitative and opportunistic approach to information gathering must be anticipated. For LSI issues associated with maritime sectors, however, this study has shown that spatialized adaptation of sector value chains can provide a helpful starting point and structure for information gathering and analysis. It assists in building a picture of the operation of a sector and its spatial footprint and connections. It also enables an assessment of the relative ‘stickability’ of economic and other benefits within coastal communities and can inform improved planning and management of associated LSIs.

Recommendation 4: The Method of Investigating LSI in MSP can also be used to inform the scope of stakeholder engagement processes within MSP plan making and subsequently in marine licensing and MSP input to other spatial and sectoral planning and management regimes.

The MSP-LSI study has provided many useful insights which can inform stakeholder engagement processes in MSP and more widely. It is apparent that the scoping of key LSI issues in a particular context may inform the desirable scope of stakeholders to be engaged in MSP processes. In addition, the value chain analysis developed here in relation to key maritime sectors may reveal key sector actors that may not have previously been identified in stakeholder mapping exercises. However, the study has also revealed the importance of ongoing engagement with stakeholders beyond MSP plan making, including the central role of MSP activities in promoting good governance of LSI. This involves engaging LSI related stakeholders in consultations on marine licensing decisions and for MSP teams to act as LSI stakeholders themselves in terrestrial spatial planning and other sectoral planning and management processes. For this the capacity of the MSP team beyond the plan production phase of MSP will be important.

Recommendation 5: Developing a 'one space' territorial perspective should be encouraged to better address LSI.

Finally, this MSP-LSI study has provided examples of the complex and deep relationship between the land and sea with interactions that extend beyond the coastal interface to cover all land and sea areas. Consequently developing a 'one space' territorial perspective can be seen to be key to better addressing LSI issues in MSP and other planning and management regimes. The study has also provided examples of the varied ways in which such a perspective is being developed in different country contexts reflecting different geographical, historical, cultural, political, legal and institutional experiences. It is apparent that 'one space' land-sea territorial perspectives are longstanding in some areas, however both in these cases and elsewhere, that development of MSP under the 2014 MSP Directive is bringing a new impetus to LSI endeavours. The MSP-LSI study highlights the value of developing a 'one space' territorial perspective not just in MSP but more widely.

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Annex 1: MSP-LSI Value Chain Data Collection Sources

This Annex provides examples of the types of data sources which can be used in an LSI value chain analysis

Value Chain Sources
<p>General</p> <p>Ecorys. (2012). Blue Growth Scenarios and drivers for Sustainable Growth from the Oceans, Seas and Coast: Final Report. Rotterdam / Brussels: DG MARE. Retrieved from https://webgate.ec.europa.eu/maritimeforum/system/files/Subfunction%202.3%20Marine%20aquatic%20products_Final%20v140812.pdf</p> <p>Aid for Trade and Value Chains in different sectors – WTO / OECD. Retrieved from http://www.oecd.org/dac/aft/aidfortradeandvaluechains.htm</p>
<p>Maritime Transport</p> <p>World Trade Organisation. (2013). AID FOR TRADE AND VALUE CHAINS IN TRANSPORT AND LOGISTICS. Geneva. Retrieved from http://www.oecd.org/dac/aft/AidforTrade_SectorStudy_Transport.pdf</p> <p>Ecorys. (2012). Blue Growth Scenarios and Drivers for Sustainable Growth from the Oceans, Seas and Coasts Marine: Profile Report Coastal tourism and yachting. Brussels / Rotterdam: DG MARE. Retrieved from https://webgate.ec.europa.eu/maritimeforum/system/files/Subfunction%204.1%20Coastal%20tourism_Final%20v130812.pdf</p>
<p>Coastal Tourism:</p> <p>World Trade Organisation. (2013). AID FOR TRADE AND VALUE CHAINS IN TRANSPORT AND LOGISTICS. Geneva. Retrieved from http://www.oecd.org/dac/aft/AidforTrade_SectorStudy_Transport.pdf</p> <p>Ecorys. (2012). Blue Growth Scenarios and Drivers for Sustainable Growth from the Oceans, Seas and Coasts Marine: Profile Report Coastal tourism and yachting. Brussels / Rotterdam: DG MARE. Retrieved from https://webgate.ec.europa.eu/maritimeforum/system/files/Subfunction%204.1%20Coastal%20tourism_Final%20v130812.pdf</p>
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<p>Offshore Wind Energy:</p> <p>ECORYS. (2012). Blue Growth Scenarios and Drivers for Sustainable Growth from the Oceans, Seas and Coasts Maritime Sub-Function Profile Report Offshore Wind Energy. Rotterdam / Brussels: DG MARE. Retrieved from https://webgate.ec.europa.eu/maritimeforum/system/files/Subfunction%203.2%20Offshore%20Wind_Final%20v120813.pdf</p>

MSP-LSI Case Study	Focal Sectors
Croatia Coast and Islands	<p>Coastal Tourism</p> <p>All of the statistical data used in the value chain analysis of coastal tourism in the Croatian Case Study area came from national sources, namely the Croatian Bureau of Statistics and the Ministry of Tourism. The website for the Croatian Bureau of Statistics provides access to numerous databases providing statistics on a number of sectors². In addition to the statistical databases available annual reports are published by the Ministry of Tourism³.</p>
	<p>Cruise Shipping</p> <p>The statistical data for the Cruise Shipping Sector came from a number of sources. Information for many of the segments for this value chain were only partially available. Data on the revenues and expenses came from the financial reports of the Ports within the core case study area, namely Port Rijeka⁴, Port Split⁵, Port Dubrovnik⁶, Port Šibenik⁷ and Port Zadar⁸. It should be noted that it was not possible to further establish what proportion of these revenues could be directly attributed solely to cruise shipping as opposed to all port users. The Cruise Lines International Association (CLIA) produces regular economic reports highlighting the contribution of cruise tourism to the economies of Europe, which is able to provide statistic on numbers of passengers as well as employment figures.⁹ Employment and data related to tourism more generally was available from the reports of the Ministry for Tourism of Croatia¹⁰. Qualitative estimates drawn from academic thesis were also used to inform the analysis¹¹.</p>

² Croatian Bureau of Statistics. Available at: https://www.dzs.hr/default_e.htm

³ Ministry of Tourism. Tourism in Figures 2018. Available at : https://htz.hr/sites/default/files/2019-06/HTZ%20TUB%20ENG_2018_0.pdf

⁴ Data source: Annual Report for the year ended 31 December 2017; http://www.lukarijeka.hr/_Data/Files/196_20180427145241355/Annual%20financ.report%202017%20consolid.%20.pdf

⁵ Data source: Financial report for NGO's for 2017; https://portsplit.hr/wp-content/uploads/295516_1.pdf

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⁸ Data source: Financial report for NGO's for 2017; http://www.port-authorityzadar.hr/download/SKMBT_C22017062915230.pdf

⁹ Contribution of Cruise Tourism to the Economies of Europe 2017, available at <https://es.cruiseexperts.org/media/2971/2017-europe-economic-impact-report.pdf>

¹⁰ Ministry of Tourism. Tourism in Figures 2018. Available at: https://mint.gov.hr/UserDocsImages//AA_2018_c-dokumenti//180608_HTZTUBENG_2017.PDF

¹¹ Nadramija, Mislav (2018), Cruise Tourism in Dubrovnik: Economic Benefits and Social Impacts, Rochester Institute of Technology Croatia.

MSP-LSI Case Study	Focal Sectors
The Gulf of Gdańsk	<p>Coastal Tourism</p> <p>Examination of the statistic information on Coastal Tourism for the Gulf of Gdańsk focused on information available via the 2017 OECD report “Greening the blue economy in Pomorskie, Poland”¹² supported by information available from the Statistical Office in Gdańsk provided in their five-year cycle study Tourism in Pomorskie Voivodship in 2013-2017¹³. Reports from the Pomeranian Development Agency (Agencja Rozwoju Pomorza) were also used.¹⁴</p>
	<p>Maritime Transport of Cargo</p> <p>The examination of statistical information for Maritime Transport in the Gulf of Gdańsk utilised information available in the 2017 OECD Report “Greening the blue economy in Pomorskie, Poland”¹⁵. This was again supported by information from the Statistical Office in Gdańsk¹⁶ and the Gdańsk City Portal¹⁷. Additional information was gathered from Port Authorities themselves including Port Gdańsk¹⁸.</p>

¹² OECD (2017): Greening the blue economy in Pomorskie, Poland. https://read.oecdilibrary.org/employment/greening-the-blue-economy-in-pomorskie-poland_9789264281509-en#page1

¹³ <https://gdansk.stat.gov.pl/en/publications/sport-tourism/tourism-in-pomorskie-voivodship-in-2013-2017,1,2.html>

¹⁴ Agencja Rozwoju Pomorza (2009): Gospodarka Wojewodztwa Pomorskiego, available at: https://www.paih.gov.pl/files/?id_plik=12088

¹⁵ OECD (2017): Greening the blue economy in Pomorskie, Poland. https://read.oecdilibrary.org/employment/greening-the-blue-economy-in-pomorskie-poland_9789264281509-en#page1

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¹⁸ Port Gdansk: Accessed at: <https://www.portgdansk.pl/about-port/development-plans>

MSP-LSI Case Study	Focal Sectors
Slovenia	<p>Coastal Tourism</p> <p>The majority of the data for Tourism in Slovenia was provided by the Statistical Office for the Republic of Slovenia¹⁹ who produce periodic reports and statistics on tourism within the region²⁰ on the number of overnight stays within the region, along with nationalities of visitors and their mode of arrival. Data for specific resorts within the case study areas were also utilised for example the Tourist Board of Portorož²¹. Information regarding specific activities relating to tourism were obtained from private organisations operating within those sub-sectors including yachting²² and information on cruises within the area²³. Local news articles relating to tourist activity was also used as a source²⁴.</p>
	<p>Mariculture</p> <p>The majority of data used in the value chain analysis for mariculture in the Slovenia case study was obtained from the Agricultural Chamber of Slovenia²⁵ and the National Strategic Plan for the Development of Aquaculture in the Republic of Slovenia for the Period 2014-2020 produced by the national government²⁶. Other sources of qualitative data sources included persons interviewed as identified by local knowledge brokers (see Case Study Report) and local organisations such as the Association of Breeders of Aquatic Animals (Društvo Rejcev Vodnih Živali Slovenije)²⁷</p>

¹⁹ Statistical Office: Republic of Slovenia. Accessed at: <https://www.stat.si/statweb>

²⁰ It is Nice Everywhere ... – Tourists and Tourism in Figures; Povsod je lepo ... – Turisti in turizem v številkah. 2017. Statistical Office of the Republic of Slovenia, Ljubljana. ISBN 978-961-239-371-7. Available at https://www.stat.si/StatWeb/File/DocSysFile/9626/It_is_%20nice_everywhere.pdf

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²⁷ Association of Breeders of Aquatic Animals - Društvo Rejcev Vodnih Živali Slovenije. Available at <https://www.bizi.si/DRUSTVO-REJCEV-VODNIH-ZIVALI-SLOVENIJE/>

MSP-LSI Case Study	Focal Sectors
Netherlands	<p>Maritime Transport of Cargo</p> <p>The majority of statistical data used in the value chain analysis of maritime transport of cargo in the Netherlands came from the 2018 study conducted by Ecorys on behalf of the Ministry of Infrastructure and the Environment in conjunction with joint initiative for maritime sectors in the Netherlands, Maritime by Holland, Maritime Monitor 2018²⁸. Background information providing some of the key characteristics of the value chain was also obtained from Eurostat data on ports in Europe²⁹. The National Statistics office, Statistics Netherlands (CBS) also provided a great deal of statistical data used in the value chain analysis³⁰. The CBS was able to provide data relating to recent and future trends affecting various segments of the value chain. Statistics highlighting direct added value and employment figures for the port of Rotterdam were obtained directly from the Port Authority³¹.</p>
	<p>Offshore Wind Energy</p> <p>The data sources used for the Offshore Wind Energy in the Netherlands were probably the most varied of all value chains examined. Several of the sources used in the value chain analysis were national organisations including the National Statistics office, Statistics Netherlands (CBS)³² and the website for the Netherlands Energy Agreement (energieopwek)³³ providing energy consumption and production data and the Netherlands Enterprise Agency on potential for growth within the sector³⁴. Many of the statistics used in the value chain analysis were sourced from international trade organisations such as the Global Wind Energy Council (GWEC)³⁵ or internationally based companies and organisations including 4C Offshore³⁶, The International Trade Administration (ITA), U.S. Department of Commerce (known as export.gov)³⁷ and the multinational Price Waterhouse Coopers (PwC)³⁸.</p>

²⁸ Ecorys (2018). “De Nederlandse Maritieme Cluster Monitor 2018”. Available at: <https://www.maritiemland.nl/maritieme-sector/publicaties/maritieme-monitor-2018/>

²⁹ Eurostat Statistics Explained (2018). Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php/Maritime_ports_freight_and_passenger_statistics#Rotterdam.2C_Antwerpen_and_

³⁰ National Statistics Office, Netherlands (CBS) Available at: <https://www.cbs.nl/en-gb/about-us/organisation>

³¹ Port of Rotterdam Authority (2018). “Facts and Figures”. Available at: <https://www.portofrotterdam.com/en/our-port/facts-figures-about-the-port>

³² CBS: Figures – Energy. Available at: <https://longreads.cbs.nl/trends17-eng/economy/figures/energy/>

³³ The Energy Agreement. Available at: <http://energieopwek.nl/#over-het-energieakkoord>

³⁴ Netherlands Enterprise Agency (2015) Offshore wind energy in the Netherlands: The roadmap from 1000 to 4500 MW offshore wind capacity. Available at: <https://www.rvo.nl/sites/default/files/2015/03/Offshore%20wind%20energy%20in%20the%20Netherlands.pdf>

³⁵ Global Wind Energy Council (GWEC) (2018). “Annual Market Update 2017”. Global Wind report. Brussels, April 2018. Available for download at: <http://files.gwec.net/register?file=/files/GWR2017.pdf>

³⁶ 4C Offshore. Available at: <https://www.4c offshore.com/about-us.aspx>

³⁷ Export.Gov (2018). “Netherlands- Energy”. Available at: <https://www.export.gov/article?id=Netherlands-Energy>; PwC (2018).

³⁸ PwC (2018). “De economische bijdrage van windenergie op zee”. Available at: <https://www.rijksoverheid.nl/binaries/rijksoverheid/documenten/rapporten/2018/08/31/de->

MSP-LSI Case Study	Focal Sectors
<p>Pomeranian Bight</p>	<p>Coastal Tourism</p> <p>The Pomeranian Bight Case Study was the only transboundary case study and as such required examination of data sources from both Germany and Poland. National data sources from Germany included studies and reports commissioned by the Ministry of Energy, Infrastructure and Digitalization Mecklenburg-Vorpommern for example on the development of marinas³⁹, the Statistical Office for the State Office Mecklenburg Vorpommern⁴⁰ and their reports including the Statistical Yearbook 2018⁴¹ and the Tourism Association Mecklenburg Vorpommern⁴² where data could be obtained for example on the number of visitors and their country of origin. Sources from Poland included the Polish Trade and Investment Agency website⁴³ and official documentation from the Ministry of Sports and Tourism⁴⁴, the Statistical Yearbook of the Maritime Economy 2018 published by the Statistical Office of Szczecin⁴⁵ and the website of the West Pomeranian Voivodeship⁴⁶ and reports they have published⁴⁷. Data sources from the private sector were also used such as the Annual Report on Tourism of the East German Savings Banks Association (Finanzgruppe Ostdeutscher Sparkassenverband)⁴⁸. The Organisation for</p>

economischebijdrage-van-windenergie-op-zee/20180606+Economische+bijdrage+van+windenergie+op+zee.pdf

³⁹ http://app-rpv.de/rpv-vorpommern/wpcontent/uploads/sites/2/2017/05/Standortkonzept_Sportboothaefen_Planungsregion_Vorpommern_gesamt_2017.pdf

⁴⁰ Statistical Office Mecklenburg Vorpommern: Accessed at: <https://www.laiv-mv.de/Statistik/>

⁴¹ Statistisches Amt Mecklenburg-Vorpommern, Schwerin (2018). "Statistisches Jahrbuch Mecklenburg-Vorpommern 2018". Available at: <https://www.laivmv.de/static/LAIV/Statistik/Dateien/Publikationen/Statistisches%20Jahrbuch/Z011%202018%2000.pdf>

⁴² Tourismusverband Mecklenburg-Vorpommern e.V. (2018). "Incoming-Tourismus". Available at: <https://www.tmv.de/incoming-tourismus/>

⁴³ Polish Trade and Investment Agency. Accessed by: <https://www.paih.gov.pl/regiony/wojewodztwa/zachodniopomorskie>

⁴⁴ Polish Ministry of Sport and Tourism (2015). "Resolution No. 143/2015 of the Council of Ministers of 18 August 2015 on the adoption of the Tourism Development Programme until 2020". Available at: <https://www.msit.gov.pl/download/3/12550/TourismDevelopmentProgrammeuntil20201f3c.pdf>

⁴⁵ Statistical Office in Szczecin (2017) Statistical Yearbook of Maritime Economy, p. 344

⁴⁶ Pomorze Zachodnie (2018). "Turystyka"

⁴⁷ Frąckiewicz, A. (2017). "Problemy i potrzeby zachodniopomorskich pracodawców reprezentujących sektor usług turystycznych". Available at: https://www.wup.pl/images/uploads/II_DLA_INSTYTUCJI/badania/gospodarka/Raport_z_badania_pn_Problemy_i_potrzeby_zachodniopomorskich_pracodawc%C3%B3w_reprezentuj%C4%85cych_sektor_us%C5%82ug_turystycznych..pdf

⁴⁸ Ostdeutscher Sparkassenverband (2017). "Sparkassen-Tourismusbarometer: Jahresbericht 2017". Available at: http://www.osv-online.de/fileadmin/osv/dateien/tourismus/STourismusbarometer_2017_komplett.pdf

	Economic Cooperation and Development (OECD) report 2018 on tourism performance and policy trends across 49 OECD countries and partner economies was also used in providing background information and context ⁴⁹ .
Pomeranian Bight (continued)	<p>Offshore Wind Energy</p> <p>Much of the data for the Offshore Wind Energy value chain in the Pomeranian Bight came from national or government organisations. In Germany the most valuable sources of data were the Federal Association of Wind Farms Offshore (BWO eV)⁵⁰ and the German Offshore Wind energy Foundation⁵¹ who have produced numerous reports on sector growth and current statistics. A report published by the Federal Ministry for Economic Affairs and Energy (BMWi) also provided data on potential future trends in the region⁵². For data on the Polish part of the case study area data was gathered from trade organisations such as the Polish Wind Energy Association who have published reports on the status of the industry⁵³. International sector associations such as Wind Europe⁵⁴ also provides a wealth of statistics and news items focusing on specific countries⁵⁵. Industry publications such as energy Voice also provided data on segments within the value chain showing periods of growth and decline⁵⁶.</p>

⁴⁹ OECD (2018): COUNTRY PROFILES: TOURISM TRENDS AND POLICIES – POLAND

[https://www.oecd-ilibrary.org/docserver/tour-2018-](https://www.oecd-ilibrary.org/docserver/tour-2018-en.pdf?expires=1542710597&id=id&accname=guest&checksum=71FB6CFEE79BFB7A03292E99813F)

[en.pdf?expires=1542710597&id=id&accname=guest&checksum=71FB6CFEE79BFB7A03292E99813F](https://www.oecd-ilibrary.org/docserver/tour-2018-en.pdf?expires=1542710597&id=id&accname=guest&checksum=71FB6CFEE79BFB7A03292E99813F)

⁵⁰ The Federal Association of Windfarm Offshore. Accessed at: <https://bwo-offshorewind.de/wer-wir-sind/>

⁵¹ German Offshore Wind Energy Foundation. Accessed at: <https://www.offshore-stiftung.de/en/about-us>

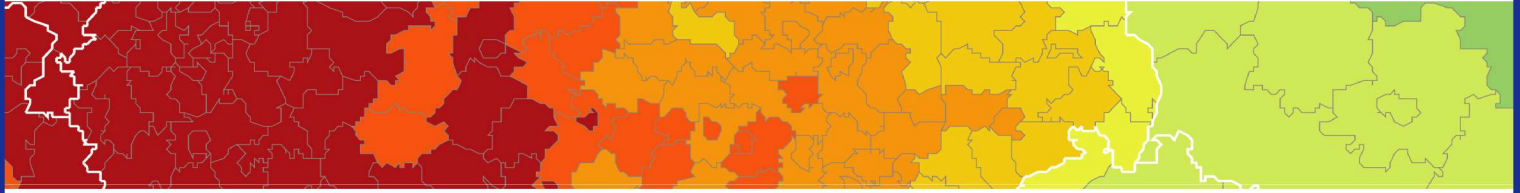
⁵² O Wehrmann, B., (2019) Clean Energy Wire, Factsheet: German offshore wind power - output, business and perspectives 21 January 2019 <https://www.cleanenergywire.org/factsheets/germanoffshore-wind-power-output-business-and-perspectives>

⁵³ The Polish Wind Energy Association (2017). "The State of Wind Energy in Poland in 2016". Available at: <http://psew.pl/wp-content/uploads/2017/06/Stan-energetyki-wiatrowej-w-Polsce-w-2016-r.pdf>

⁵⁴ Wind Europe. Accessed at: <https://windeurope.org/about-wind/>

⁵⁵ WindEurope (018). "Ambitious 8 GW of offshore wind planned that will put Poland back on wind energy map". Available at: <https://windeurope.org/newsroom/press-releases/ambitious-8gw-of-offshorewind-planned-that-will-put-poland-back-on-wind-energy-map/>

⁵⁶ Energy Voice: "For Heiner Kleen, Germany's renewable energy revolution looks like it will end in redundancy." Available at: <https://www.energyvoice.com/otherenergy/181001/job-losses-mount-in-germany-as-wind-companies-look-for-growth-abroad/>



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